

# CANADIAN PUBLIC HEALTH JOURNAL

VOL. 31, NO. 5



MAY, 1940

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## After-Care and Rehabilitation of the Tuberculous\*

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ALTHOUGH after-care and rehabilitation of tuberculosis patients have been discussed and sporadic action has been taken over a period of years, it seems necessary to give this particular subject more consideration in Canada. So far, we have been passing through the pioneering stage of sanatorium treatment, at first with the main emphasis on curative measures and later with a shift to the public health point of view of housing infectors.

We are rapidly approaching that rather ideal state where it will be possible to supply sufficient beds to meet the demand for the care of active cases. This is true for about 60 per cent. of the population. The other 40 per cent. will require 3500 beds to supply the discrepancy. There has been a satisfactory drop in the death rate and with it a decided drop in the number of people who react positively to tuberculin, as shown by repeated surveys in different years in comparative groups.

We have, however, neglected to give full consideration to an attempt to lengthen the life-span of the discharged patient who will later swell the ranks of future breakdowns. Nor have we reliable follow-up statistics available on the results of collapse therapy, in contrast to the results obtained by routine sanatorium treatment. To arrive at a definite basis for consideration of after-care and rehabilitation, this is necessary. It should be Dominion-wide, in order to have a satisfactory sampling of our working population and represent all occupied individuals. It is not enough to know that a man is a labourer. We must have some idea of the energy that he expends in his occupation, or if he is

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\*Condensed report on after-care and rehabilitation of the tuberculous given at the annual meeting of the Canadian Tuberculosis Association, London, Ontario, 1938.

unemployed, and so on. Such surveys would not be difficult in smaller areas or where an intimate follow-up could be carried out. Few of us at present would be able to state just how many of our ex-patients require definite sheltered employment.

A survey on after-care and rehabilitation by E. Brieger (1) touches on the progress that has been made in improving the end result of sanatorium treatment by the newer methods. While it is difficult to compare the result of twenty years ago with that of today, and while there is still some question as to whether newer methods have accomplished much in lengthening the life-span and reducing mortality rates, there is fairly strong evidence that this is so.

In assessing the cause of relapse, adequate length of treatment must be taken into consideration and also the relationship of environment to life expectancy.

I quote this observation by Ferguson (2) on the causes of relapse: "As our experience with tuberculous patients has increased, and the time since discharge has been prolonged, we find that the importance of over-work as a cause of relapse has established itself as by far the most important cause, and that other predisposing causes, such as unhygienic living conditions, have receded." The most important observation is the high proportion of relapses which have been designated as unexplainable. These relapses occurred in patients who were discharged in good condition, so far as their disease was concerned, returned home to average living conditions, and had co-operated well.

Experience has already taught us that in persons of good social standing, with good living conditions, tuberculosis has a more favourable course than in those whose economic circumstances are far from good. It is also possible to confirm this observation by statistical methods. On the other hand, it is difficult to ascertain whether it is the unsuitable work or the early resumption of heavy labour, the inadequate dietary and living conditions, that contribute to the bad result in manual workers.

The annual reports of Midhurst Sanatorium (3) lead one to believe that the main factor is unsuitable work; other workers contend that the constancy of regular wage is the preventive element. Ascher (4), in Germany, attempts to prove that unemployment lengthens the life-span of young tuberculous workers who have an adequate diet and average housing. Zinn (5) states that the expectancy of life and prospects of healing from artificial pneumothorax are 50 per cent. greater in the socially independent group than among the working class. Bentley (6), on the other hand, found only 10 per cent. improvement.

Barnes (7), in a study of ex-patients employed in a sanatorium, found that there were 25 per cent. more survivors than in a larger comparative group outside. The recent statistics of Knight and Dublin (8) lead to the conclusion that early detection, sufficiently long sanatorium treatment, the guarantee of economic conditions and regular hours of work have a definite influence upon the prognosis of tuberculosis.

It would appear that it would be a great advantage to have a more general survey of the various types of survivors of all forms of treatment as the basis for consideration of the after-care problem.

## THE PROBLEM IN CANADA

In a discussion of after-care and rehabilitation, it might be well to consider the peculiar problem which faces Canada. To begin with, the health authorities have organized their anti-tuberculosis program with consideration of two prime factors: treatment and prevention. Funds and effort have been expended first of all in an attempt to meet these two basic requirements, and it was felt that public demands for money should be based upon them. Some of the provinces have not yet, however, attained the desired objective of two beds for every tuberculosis death.

The question now arises—and must be faced: “Should we at this time proceed with a wider program of after-care and rehabilitation, or intensify our efforts in the search for early cases?”

There is little doubt that, on the whole, there is not being made sufficiently thorough search for early cases by means of contact work and area surveys, even if there were a sufficient number of beds in Canadian sanatoria to guarantee prompt accommodation for those discovered to have early tuberculosis. Health officers and workers have not yet exhausted the valuable possibilities to be found in contact and survey work extended over a large area. In New Brunswick, for example, there are personnel and facilities for an efficient system of contact examination and follow-up, yet such efforts are made at least partially sterile because so far it is impossible to house all open cases of tuberculosis that apply for care.

At the same time, while accommodation for early cases remains a special difficulty, the realistic problem of after-care awaits solution. Most discharged patients will fall into one of two categories. Those whose sputum was positive on admission and who, though good chronics, still have a positive sputum on discharge, we will refer to as belonging to the ++ group. The other group are those whose sputum was positive for tubercle bacilli on admission but on discharge has become negative. We will refer to these as belonging to the + — group. What is to be done with the ++ patient, who remains a chronic case, yet is a genuine menace to public health? We can educate him in prevention, but practical experience demonstrates that this is only mildly effective. Must such a man or woman continue to be turned back into society, without adequate control, to repeat the cycle of infection? Frankly, what control have we over patients with open tuberculosis, away from institutions? And what are we to do with relapsed + — patients, who, under the stress of toil outside the bounds of control, revert to a ++ condition? Are our sanatoria to be crowded with these infectors? Surgery is not always the final answer, because pneumothorax or phrenicotomy is not universally successful either because of adhesions or unclosed cavities. Even thoracoplasty will leave some 25 per cent. sputum-positive patients.

For all of these reasons, it is important to consider and perhaps adopt measures that will increase the number of patients being given what we may call sheltered employment, even if such a system as we can devise does little more

than to control intelligently the lives of the chronic ++ patients. Aside from these, consideration must be given to that group of unstable + - patients who may become stable under proper protection.

Despite the objections raised against the use of ex-patients in institutional positions, I fail to see why we should discriminate against them. We could hardly expect outside employers to greet them with open arms, if we refuse them. It may not be the most economical plan from an administrative point of view, but some of us have found that the good chronic + - or ++ patients make loyal employees and our own experience does not show that they have a higher rate of general sickness than our non-tuberculous employees.

We employ nurses with or without pneumothorax and partially stabilized disease on part or full time, and each year we are adding more to our services.

The vocational guidance officer should also know where the stabilized ex-patients may be placed in industry, and should interest employers in accepting these people. For example, we have found that if assurance can be given to housewives that the ex-patient is a non-infecter and capable of handling the job, they will often accept maids from this group into their employ. We are constantly besieged by these women for such assurance. There is a noticeable improvement in this respect in recent years.

The first step in any effort to institute a sheltered employment program must be to acquire a complete knowledge of sanatorium population, under the following headings:

- (1) How many will be eliminated in a three-year period by death?
- (2) How many good + - patients will probably be sufficiently stabilized to return to their former occupations?
- (3) How many + - patients will come under category 2 because they will not have to do heavy manual labour?
- (4) How many + - patients are unstable and yet may later come under category 2, three or five years later?
- (5) How many good chronic ++ patients remain?

There now remain to be considered in aftercare projects:

- (1) Stable + - patients who are untrained and usually uneducated.
- (2) Unstable + - patients of all walks of life.
- (3) Good chronic ++ patients.

The next step must be to evaluate ex-patients on the basis of their physical limitations and their mental capacity. Certain patients so classified can be trained to improve their economic position, by means of a general educational program already instituted in many institutions. But vocational training, being much more specialized, is a more complicated problem. The multiple factors involved in such training might make it appear that such a plan would be impossible to set up. However, some vocations can be taught in a sanatorium without too great cost, e.g., shorthand, typewriting, cabinet making, carpentry, nurses' assistants, laboratory and X-ray technicians, office management and maid service.



Closer examination of the situation, however, brings out some more cheerful aspects. It is possible to obtain close co-operation with existing vocational schools, under youth-training plans already in existence, provided that the patients involved are in the + — group.

All such rehabilitation schemes must, it is emphasized, be directly under the control of the institution sheltering the patient. The rehabilitation program, it would appear appropriate to mention, could very well come under the guidance of a director trained in such programs, who would be able to adjust the mental aptitude of the patient and his physical capacity and ability. At the same time, every effort must be exerted to keep the cost of rehabilitation activities to the lowest possible figure in keeping with good results.

#### REHABILITATION SCHEMES FOR THE TUBERCULOUS

In the history of rehabilitation schemes for the tuberculous, there have been many experiments, especially in the field of sheltered employment. One of the first was the farm-colony scheme, which was not a solution because not enough remunerative activities could be carried out in a restricted space and, moreover, the type of work was not conducive to stabilization of patients. Subsequently, many such colonies became training centres and hardening after-care projects.

Among these are the Southfield Farm Colony, founded near Edinburgh in 1910; Tomahawk Lake State Camp, Wisconsin; the Hairmyres Colony in Scotland; Kinson Farm Colony for ex-soldiers, near Bournemouth, England; and the Rutland State Sanatorium, Massachusetts. Many and varied activities have been carried on in after-care settlements, yet, in some ways, one is rather skeptical about their practical application over a long period.

Really serious thought leads to the conclusion that the best opportunity for sheltered employment is to be found in mechanized industry. There are several reasons for this belief, not the least of which is that work in industry of this kind under proper organization more nearly approximates normal life.

One of the most important projects of this type is that at Papworth, England, which is really the parent of all similar undertakings. Growing out of the initial Papworth scheme of mechanized industry for sheltered employment have been two others, Preston Hall and Peamount.

In addition to the valuable work done at such places, helpful to the mind and to the hand, there are many subsidiary activities, such as executive duties, office work, advertising, designing, and salesmanship.

The capital cost of such schemes as Papworth is high, admittedly, but under ideal management, in a field free from competition, it can be made to meet operating costs. The operating deficit at Papworth is only a small amount per man, per year, while Preston Hall is self-sustaining. Perhaps the argument will be advanced that none of these colonies will ever meet the carrying charges of the capital investment. But consider the good that is done—not measured in dollars and cents. Should we not be willing to pay for a plan that will decrease sanatorium care for patients who subsequently break down? Should we not be will-

ing to pay something for the sake of protection from open cases? Let it also not be forgotten that among those in the lower wage scale, illness means non-production, and that, for many, means relief of some kind.

It cannot be denied that there are many difficulties in the way of such a plan, were one to be tried on an adequate scale in Canada. Quite a number have been "nursed" for a few years and failed. Others have succeeded, and are growing. There have been failures where unsuitable occupations have been selected, where intelligent medical control was absent, where adequate financing was lacking. Other reasons for failure have been a lack of continuity in the various stages in the progress of a patient from the sanatorium to sheltered employment, because the life of the individual was too remote from his normal one, and, finally, because of the attitude of the public at large.

To try to transplant to another part of the world a Papworth or a Preston Hall would be a serious mistake, without first acquiring a full understanding of what products could be manufactured to advantage in the area where the project was to be established. Inquiry indicates that marketing goods made by patients would not be too difficult, but some articles could not be made without a considerable loss. To indicate the extent to which this is true, let us cite a few industries and the difficulties and the advantages of each in the light of sheltered employment.

1. Furniture making: This requires a highly mechanized plant. It has been successful in England, but in Canada the industry is highly competitive and the profits are not great.
2. Shoemaking: Requires little actual capital, since machinery is rented. Some stock designs can be made profitably.
3. Glove making: Also requires little capital, yet gives adequate returns.
4. Printing: Has possibilities, both in the field and in the closed market of printing for public institutions.
5. Upholstering: Not a satisfactory occupation, since it is chiefly hand-work and requires a market near at hand.
6. Leather goods: Papworth has developed a large overseas trade in New York; but could Canadian leather goods be sold in competition with British luggage?
7. Pressed fabric suitcases, boxes, etc.: Can be turned out with a reasonable return.
8. Specialties: These depend tremendously upon the skill of an organization to develop easily made products that will attract the public fancy. They are usually of brief duration, need extensive advertising, and must be quickly followed with new specialties. An example of such a product is the Shirley Temple doll.
9. Tourist novelties: It is almost impossible to compete with factory-made novelties turned out by mass production.
10. Ornamental metal work: Limited to a few workers, because of the need for distinctive handicraft and artistic taste.

The advice of competent industrial engineers should be obtained before embarking upon the industrial type of sheltered employment.

More must be done than simply to undertake a Papworth or a less ambitious project. Evidence must be obtained that work with machinery by part of the sub-standard tuberculous population will solve one of the major problems in the field of tuberculosis, either permanently or temporarily. It is important to accumulate statistics of the results obtained by after-care projects, to ascertain whether such devices really increase the number of survivors and whether they really stabilize the + — group.

The principal cause of relapse is over-work, according to Ferguson, who also classifies a group of treatment failures as "unexplainables", and it can be assumed that many of these were a result of over-work. Over-work alone is to blame for 30 per cent. of relapses. It should be fair to assume that properly controlled sheltered employment would reduce this number greatly.

The sanatorium should be the centres of any rehabilitation scheme. The reasons seem obvious: (1) the sanatorium must determine the physical condition of the patient; (2) there must be definite medical guidance in re-training and there must be constant medical supervision of colonization by a trained staff.

I cannot conceive of such a plan operating successfully unless medical control be present at every stage in the rehabilitation. It is all a part of the curative job, that of eventually reinstating as many men and women as possible to active participation in the world's business, non-infective and with stabilized tuberculosis.

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# Rehabilitation

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**M**EDICAL men, hospital administrators, public health and social workers are showing an increasing interest in the subject of rehabilitation. The frequent readmissions to institutions of tuberculosis patients, and patients with various other types of chronic disability, have caused many to take stock of our present handling of chronic illness and to ask the question: "Are we adequately treating these patients when we only give them thought and care while in our institutions?"

While many people from different walks of life—medical men, sociologists, economists, public health workers, and well-meaning voluntary workers—have given thought to the question, a confusion of ideas has arisen as to not only what rehabilitation really is but as to how the problem should be approached.

This confusion of varied opinions has in many instances caused the ultimate objective to be but a hazy object in the distance. However, from the somnambulant wanderings of the past decade there are gradually emerging some concrete ideas as to what rehabilitation is supposed to accomplish.

Basically, in any rehabilitation project we are attempting to aid the handicapped individual to again assume his or her place as a useful economic unit of society. Let us at the beginning draw a line of distinction between occupational therapy and rehabilitation. Occupational therapy in its limited sense is confined to the patient's stay in institution, or to a limited number of patients attending outdoor departments where remedial exercises are given through some handicraft; or in other instances, where pure diversional activity is required in persons who will go back to their previous economic position in the community. Occupational therapy might be further extended to educational activity of the young while patients in an institution, or to certain groups of mental disability.

We hear of vocational training, but is this not more a part of an educational system than a rehabilitation project? What does our patient need when leaving an institution, where he has been given every advantage that medical science has to offer, and where he has been carefully kept away from economic problems? Surely it is food, shelter, clothing, some freedom from anxiety, and careful medical supervision of his condition while attempting to work. What does all this mean? It means money from wages for useful work done.

We hear of aptitude tests, social readjustment, vocational guidance and many such terms applied to rehabilitation which but serve to confuse the issue and leave the main objective somewhere just over the horizon.

We might define rehabilitation as the process of aiding the handicapped

individual to reach a state of physical and mental condition that will enable him to apply for employment in the open labour market, this being accomplished through sheltered conditions under medical supervision, with wages being paid for work done. Some will remain permanently in the rehabilitation project, others will go out to employment in established industries, and others will join the unemployment ranks.

In this paper it is being assumed that the need for rehabilitation is well recognized. The importance of this phase of a tuberculosis control program is more and more coming to the fore. Tuberculosis can never be adequately controlled and no antituberculosis program can be considered adequate until the after-care of patients is adequately handled by some method.

Today we are spending a considerable sum on tuberculosis. Free clinics, with every modern facility, are available for diagnosis; surveys are conducted among large groups; every endeavor is being made to educate the public in methods of tuberculosis prevention; institutions are provided to treat those affected with the disease. In our institutions every benefit of modern science is offered in our attempts to arrest the individual lesions. After six months, one year, two years or more of care, if our treatment is successful, we ask our patient to leave our careful guardianship, and in a matter of minutes his whole social condition becomes completely different. We have left our job half finished. How have we equipped our patient to face the rigors of economic life? Are we not asking for breakdowns, for upset homes, for a new nidus of infection in the community? Can we continue to close our eyes to this problem? Our present course is not only inhuman but illogical and uneconomic.

After-care can also be profitably applied to other chronic disabilities with benefit to both patient and community. The advent of war brings up the question of rehabilitation of those who will return from overseas. Surely it is not necessary, therefore, to go into the need for rehabilitation, for their need must be apparent to all, although it may be pertinent to advocate a national study of the full extent of this problem. It is sincerely hoped that our governments, particularly the Dominion authorities, will give leadership in this field.

Vocational training: has it a place? If the individual is within the regular school age, education leading to a vocation is readily recognized, but this is hardly rehabilitation. The vast majority of those needing rehabilitation are those who have had previous employment or those drawn from the unemployed ranks. A rehabilitation project cannot be successful if it attempts to be an employment agency. Already we have a group of healthy unemployed for which jobs are unavailable, and today some of the best minds of our nation are being applied to find a solution. Let us confine our rehabilitation discussion to the handicapped individual who is incapable of competing in the labour market. We have a big health investment in these people, an investment that must be protected, otherwise we get breakdowns, increased hospitalization and, where tuberculosis is concerned, breakdowns create centres of infection leading to new cases developing. All we can hope to do is to guide our patients back to health, to give them a chance to earn a living under physical guidance until such a time as they are fit to resume their place as normal average individuals.

We should not attempt to teach them a vocation but should give them a job in an industry enabling them to build up their physical health and develop confidence in their ability to work. What is the project's responsibility then to the individual, if he becomes well enough to go out and apply for work in the open labour market? Here is where a difference of opinion has arisen, but it is herein submitted that there is no responsibility. There are recognized employment agencies and it seems folly to duplicate these, although it could be argued that there should be developed a specialized branch within these employment agencies which would help to guide our patients back into established industry. The normal person can compete in the struggle for employment in all types of work whereas the patient who has graduated from our rehabilitation project can only compete for a limited number of jobs.

Rehabilitation of the tuberculous is probably a little different problem than any other type. Here we are dealing with a fluctuating condition which can break down after an apparent cure is established. This concept, which deserves more widespread recognition, has led to the thought of development of permanent industries or to the possibilities of village-settlement schemes. In this field of work where there has not been any unanimity of opinion, launching any endeavor must be done somewhat as an experiment, and progress must be by the trial and error method.

Such has been our experience in British Columbia, where needs are apparent, funds for initiation of new work rather scarce, and where there is some skepticism as to whether any rehabilitation plan can ever be successful. In our institutions occupational therapy had been developed, doing a good job from a diversional and remedial standpoint, but it became apparent that the individual leaving institution stepped back into life ill-provided with physical ability to meet the exacting demands of the struggle to exist. Thus was engendered in the minds of a group the idea of starting something that would actually rehabilitate.

A start was made by organizing what is now called the Vancouver Occupational Industries. A little shop was opened and patients put to work. Funds for capital all came from voluntary donations. The State was interested but has chosen to watch developments. Patients were put on a small wage and manufacturing started. This was far from a village settlement but is analagous in some ways. Nearby are our hospitals, from which we draw the workers who, when leaving hospital, live in inspected boarding homes close to the shops.

Difficulties soon became apparent. Working capital was nil, which has been a distinct handicap to progress. Articles were first made by the handicraft method; a large variety with no standardization of quality, prices not competitive with organized industry and, worst of all, a market dependent upon the sympathy of interested individuals, a market soon saturated as workers increased, resulting in a loss of interest of both patients and those sponsoring the organization and tending to place the project in the category of a hobby for a few people.

It was agreed that a lesson had been learned and that some change had to be made. The first step was to see what could be made on a larger scale that was saleable in the open market. Developing markets for goods is not simple,

as any commercial firm can testify. It is here that inventive genius has its place: to make something relatively simple, to make it well and within a price range that makes it acceptable to a large number of buyers. A full-time business manager was appointed, a step that we now believe is essential to the development of any such industry.

The right individual in this position is important. He must have personality, ingenuity, energy and a knowledge of modern business. The success or failure of the enterprise will largely depend on the business manager. He, however, will need some directing force behind him and here an active and interested board of directors can not only take the initiative for many developments but can also take the brunt of many difficulties which are bound to arise.

It was then found that another essential was to have key men who were selected from patients able to work at least a seven-hour day, and to have these act as foremen in their particular part of the industry. Then, to offset the handicap of the individual, modern machinery is paramount. Almost all physical handicaps can be overcome by the intelligent use of machinery. With a business manager, foremen, and up-to-date machinery, we then have the nucleus for our rehabilitation industry.

Next, as to what should be made. This will naturally depend upon local conditions and the ingenuity of the management. Anything attempted should show a slight margin of profit; otherwise, as the industry grows the increasing deficit will soon bring the project to an end. Where capital has been donated, tax-free land obtained, and there is the possibility of obtaining heat, light and power from existing institutional power plants, and some wage subsidies from public assistance departments, it should be possible to balance a budget and not require frequent excursions into private purses to offset deficits.

In British Columbia, wood is one of the main natural products, so it is natural for our industries to develop a large woodwork shop. Types of articles that are sold by the ones and twos have been largely discontinued. Gradually only articles that can be sold by the hundreds are being made. You may say, "Well, now you will be competing with established industries." The amount of competition that a handicapped group is able to offer to established industries is a very small amount in the economic life of any community; and, further, it should be possible to develop certain types of work that might be termed a natural prerogative of the handicapped. If such is not recognized, then we must admit that these people are to have no chance and when becoming chronically ill a worker is to be removed permanently from the wage market,—he and his family existing—not living—by the benevolence of his fellow men through payment out of taxes. Surely there is no group of workers in the world who would not want to see their handicapped fellow men be given a chance.

Woodwork, then, has become a major development of the Vancouver Occupational Industries. The types of articles made have depended upon markets obtainable, inventive genius and cost of manufacture. Quite a wide variety of products are now being successfully made and sold, toys, garden furniture, babies' cribs, lockers, ping pong tables, bed trays, etc.



Book binding was initiated and almost discontinued. However, it has now been developed into a profitable part of the Industries. Hospital records, circulating libraries, medical and university libraries, etc., all need a certain amount of book binding. This is a type of work that has proved very satisfactory for certain types of handicapped people.

Leather work is another branch of work that has been successfully built into the shop. Other activities are developed or discontinued as the needs arise or cease. Flexibility of enterprise has been an essential in our trial and error method of feeling out the capabilities of the Industries and the available markets.

One of our most important committees is what we term our Placement Committee. This is composed of trained social and public health workers, representing tuberculosis control, general hospitals and public assistance departments. It is their duty to select the individuals for rehabilitation. Applications for placement go through the hands of this committee and all are individually and carefully studied.

It has been found essential to have a clear understanding on the part of the patient as to the basis upon which he is accepted. It is pointed out to each case that the Industry will provide a period of part-time occupation, giving a certain economic security during the individual's rebuilding process but that the purpose is rehabilitation, and that at such time as they are fit for full-time employment from the medical, social and technical points of view, the shop has nothing further to offer them and that no permanent position is promised them. We have recognized, however, that there are two groups of a more permanent nature which should not number over 20 per cent. of the total. One group consists of the departmental foremen and might be called the supervising group. The other group includes those who will always require sheltered conditions, who can never actually be rehabilitated, but because of their training in the shop, and their skill even at part-time work, can be depended upon for consistent high-grade work. These groups might be considered as being rehabilitated within the Industry.

In considering applications we have laid emphasis upon selecting those who are young enough, capable enough, and with a prognosis sufficiently hopeful enough for rehabilitation. An endeavor is made to discuss with each case at least every six months, his progress and to reiterate the object of his employment in the Industry. This tends to obviate the inevitable feeling on the part of many patients who frequently are so anxious for the opportunity that they would be willing to start without remuneration but who soon begin to feel that increase of salary should be given, that they are being exploited or that they have a right to expect a permanent job.

Wage subsidies from public assistance departments should be a just claim for any rehabilitation enterprise. Such consideration was readily given to the Vancouver Occupational Industries. If a patient on leaving an institution is eligible for some form of public assistance, and also is a suitable candidate for rehabilitation, is it not better to pay that money over to an organization which will endeavor to do a constructive piece of work with the patient than to pay out the money as a mere dole? Also, the health investment already made is being

protected. It is then easily possible to start the patient on the payroll at, say, twice the amount he would receive on straight relief. Wages then may be built up as the individual warrants receipt of such, which is based largely on increased capabilities, which latter might raise him into a foreman class.

Hours of work are determined by the physician, who holds a regular clinic within the shops at least twice a month, each individual's hours being increased or decreased on the physician's prescription.

It has been found necessary in order to prevent breakdowns to reduce to a minimum the element of competition. Each worker makes only a part of an article, is never paid on the piece work basis, and the basis of wages is not determined by the number of hours' work done. Close medical supervision has proved essential. Early signs of any breakdown are readily detected and a short lay-off is usually all that is necessary. A two-hour lunch period has proved essential and all patients who have not reached the maximum number of hours work per day are requested to lie down for at least one hour, in quarters provided adjacent to the shop. Weight and temperature records are kept and any alteration reported. So far, breakdowns necessitating readmission to institution have been negligible.

We now have a working unit developed with a board of directors, business manager, foreman, workmen admitted through a placement committee, medical supervision, workshops equipped with modern machinery, all dovetailed into one purpose; namely, to provide work and wages under sheltered conditions for a certain group in our community.

Now we come to the problem of capital. As long as the project is experimental, it is probably just to assume that voluntary funds should initiate the development. Herein, however, arises a difficulty. Money can usually be obtained for direct capital expenditure in buildings and equipment, but working capital is not so readily available. It is human nature for the individual or service organization to want to see some tangible thing for their money. Our Industries have been severely handicapped by the lack of working capital and as the number of workers increases and products are made in larger quantities, this need becomes more and more obvious. However, in our beginning this may have been an asset, for it taxes to the limit the ingenuity of all concerned to carry on. Progress is much more slow but it means full value for every cent spent.

It is our feeling today that rehabilitation is now passing out of the experimental stage. The pioneers in England, notably Sir Pendrill Varrier-Jones at Papworth, McDougall at Preston Hall, and others, have produced most creditable results and have demonstrated the value of their work. This continent has tended to lag behind, choosing to try all the bypaths on the road, nearly all of which have been explored. Surely the time has come to consolidate the experiments and the theories, to shear the subject of its irrelevant phases and to start to produce a policy that will lead to the firm establishment of rehabilitation as a recognized and important part of any community's health and welfare program. It is our feeling, and it must be the feeling of many others, that the State must

begin to assume some responsibility in this development. If it is to be recognized that this is as much a part of community welfare as hospitals and other public institutions, then it should be logical to expect the State to contribute from both a capital and maintenance standpoint, either by developing its own projects or by giving grants to boards established with State approval.

With capital we are on the road to a successful endeavor. We have a business, supporting some of our fellow men, and all business principles must be applied. How are markets to be developed? Well, how has any business developed a market? Every day we see new enterprises started and developing into successful ventures. Surely, with pooled resources and the possible recognition of a few types of work being a natural prerogative of rehabilitation, markets can be developed. Papworth, for example, has grown up in a country where manufacturing has reached a high point of efficiency and where the ratio of industries to population is high, and it has succeeded in doing excellent work.

In British Columbia we have ventured forth into this much neglected field somewhat like a ship in an uncharted sea. Storms have been weathered and the unknown shoals and rocks have been circumnavigated with still unknown, but we hope not insurmountable, difficulties still ahead. Two projects are being developed, one in Vancouver, the other in Victoria, each quite different superficially, due to necessary adjustments to meet local conditions, but based on the same fundamental principles. How the rehabilitation problem eventually will be adequately solved is still a matter of conjecture, but armchair thinking and inactivity will not lead to our goal.

#### SUMMARY

1. The need for rehabilitation of the handicapped is well established.
2. It is necessary to differentiate the rehabilitation of the handicapped from the general unemployment problem.
3. Voluntary financial support in the experimental stage is necessary but capital must come from the state to bring about a successful program.
4. Tuberculosis cannot be adequately controlled until the after-care problem is satisfactorily settled.
5. Although tuberculosis exemplifies the need for rehabilitation, other chronic disabilities deserve attention in this regard.
6. Diversional and educational occupational therapy and vocational training have a place in community welfare but are not directly a part of rehabilitation.
7. It is possible that it may be necessary for a few types of work to be looked upon as the prerogative of the physically handicapped.
8. In an after-care project certain key individuals are indispensable.
9. National leadership should be forthcoming in this work.

# Problems Which Arise in the Handling of Illness among Wage Earners\*

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TO most of us the term medical service in industry conveys the idea of specialized, perhaps elaborate, arrangements established for dealing with the medical problems which develop in relation to the working staffs of large industrial plants. It may be felt that these services look after the average industrial worker's medical needs and that therefore this branch of medical science does not especially concern the physician in general practice.

Some large industrial concerns, it is true, have arrangements for such services but the practice is by no means general. In fact about 80 per cent. of industrial workers in Ontario follow their occupations in plants employing fifty or fewer workers. Plants of this size cannot support self-contained services. A few small concerns in combination with other plants have provided a modified form of medical supervision for their employees such as that recently described by Harrison (1), but the practice is uncommon. This makes it apparent that the medical care of industrial workers devolves largely on the physician in general practice.

## THE FAMILY PHYSICIAN AND THE CARE OF INDUSTRIAL WORKERS

No one can question the benefits which have accompanied industrialization. Its establishment, however, has introduced influences which operate in connection with industrial employment and modify the problems of illness and disease in the industrialized community. The importance of these influences can only be appreciated if they are studied in connection with the occupations which produce them. It is not to be expected that the practitioner can make himself fully conversant with all the different processes and conditions of work encountered in industry. He may, however, acquaint himself with those presented by industries operating in his own immediate district. It is important that he should do so, for the family physician who attends industrial workers is often faced with problems arising out of the occupations his patients follow. Not infrequently, in the individual case, his advice respecting employment does much to determine whether a workman maintains his economic independence or becomes, either partially or entirely, a public charge.

Among the problems which frequently must be met and decided by the

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\*Presented at a Stated Meeting of the Academy of Medicine, Toronto, April 2, 1940.

family physician in connection with industrial patients is that in relation to future employment. The family physician will have three groups with which to deal:

- (1) Those who should remain at work.
- (2) Those able to work but who might with benefit be employed at some other type of work than that to which they are accustomed.
- (3) Those who should temporarily or permanently discontinue work.

In dealing with this problem the physician should be in a position to determine the importance of occupational influences which may affect a workman returning to his occupation after illness.

*(1) Those who should remain at work*

The question of continuance at work arises in respect to many occupations. It is encountered most frequently in relation to those at which workmen may inhale dust or fumes. Dusty atmospheres may be unpleasant to work in but, as has been established by long and careful study, the mere fact of dustiness in an occupation should never be the basis on which a change of occupation or discontinuance of work is advised since many dusts are harmless.

Atmospheres are injurious when they contain poisonous fumes; dust of poisonous substances such as lead; irritating substances which, in contact with the skin, give rise to dermatoses; and silica or asbestos dusts which damage the lungs.

In most occupations the hazards relating to poisonous or irritating fumes and dusts can be controlled and occupational illness among operators in them prevented by mechanical removal of the offending substance. When these measures are coupled with medical supervision of workers they are more effective. In plants where these measures are provided and are well maintained, employees can safely be advised to continue at their accustomed work and should be encouraged to do so. Particularly is this true of those in the older age-groups.

In respect to workers affected by skin conditions contracted through contact with irritating materials, a period of absence from contact is often required. Sometimes this can be accomplished by a shift of occupation while the patient remains at work. Not infrequently a period of absence from work is indicated. Such cases can resume their previous occupation when the condition has cleared. The occurrence of such skin troubles indicates a lack of adequate protection coupled generally with faulty personal hygiene and these faults may require correction.

Silicosis is a chronic disease to which a host of workers are liable because dust production in many occupations involving exposure to silica has not yet been adequately controlled. It is therefore in connection with industries carrying a silica hazard that the problem of those who should remain at work is most acute. In this connection one should remember that silicosis occurs in two forms: simple silicosis, in which disability is generally slight or cannot be demonstrated, and silicosis with infection, in which disability is apt to be severe. It should also be remembered that as a rule it occurs in skilled or semi-skilled

workers, often those in the older age-groups who do not adapt themselves readily to new types of work. Silicotics past the age of forty even if they show some slight disability are better left in their accustomed occupations because they actually find these less fatiguing than unaccustomed work.

*(2) Those whose occupations should be changed*

Respecting those in whom a change of occupation is advisable it should be remembered that the different body systems are especially susceptible to particular poisons or other harmful influences which occur in certain occupations. It is also significant that some occupational poisons are cumulative in their action, either because storage in the body occurs or because their harmful effects are progressive. In relation to this selective action, special attention should be directed to the appearance of disease manifestations in the system which the poison primarily attacks. Those exposed to poisons such as lead, arsenic, mercury, carbon bisulphide and others are prone to nervous disorders.

Gastrointestinal troubles, particularly gastritis, tends to appear in workers in contact with the vapors of acids and alkalis. Gall-bladder disease is not uncommon in those exposed to carbon tetrachloride. Cardiovascular disease is significant in the lead worker. Finally, certain individuals become sensitized to the materials with which they work, with the result that they develop asthmatic symptoms or dermatitis.

The development of such conditions in their particular relation to selective exposures calls for a change of occupation. This procedure is also often indicated in connection with the recurrence of pneumonia in the foundry or steel worker exposed to the influence of extremes of temperature, and in the young silicotic in whom fibrosis is rapidly progressing.

Cardiovascular disease and cardiac abnormalities, quite apart from any occupational cause, are of importance in relation to employment. An unpublished report obtained from the medical staff of a large American employer of labour indicates that, from experience covering a period of twenty years, it was found that all employees with cardiac murmurs, whether so-called functional or not, broke down if they were engaged at very heavy work.

The importance of change of occupation or selection of work in those developing cardiovascular disease in occupations involving public safety deserves particular attention. This has been stressed by Dowd (2) in connection with his experience in the medical service of the Canadian National Railways.

*(3) Those who should discontinue work*

Two classes compose the group who should discontinue work: those no longer able to work and those for whom a rest from work or some occupational exposure is indicated. The problem in this group is often complicated by the factors of economics and compensation.

Those who should be removed from work comprise the seriously disabled concerning whom no special comment is necessary (each case must be considered on its own merits), and persons in dangerous occupations who for economic

reasons or from the lack or inadequacy of medical supervision remain at work when they should be resting. Among the latter will be found the lead worker who gradually accumulates lead until serious manifestations of poisoning occur from which recovery is usually slow. Likewise the benzol worker not uncommonly continues at his work until his blood is so depleted and the blood-forming organs are so damaged that recovery is doubtful. The silicotic showing moderate disability in whom evidence of active tuberculosis is wanting also falls into this category.

Timely removal from exposure and a six-months' period of rest in such cases often serve to offset disaster and greatly prolongs the individual's working life. Not a few so treated are able to resume their former work while others become self-supporting in lighter occupations.

When active tuberculosis complicates silicosis there is little chance that the sufferer will ever return to work. Attempts have repeatedly been made to place these cases after they have undergone treatment and a period of rest which has apparently arrested the tuberculous process, but in the vast majority this has not been successful. As a rule when tuberculosis complicates silicosis return to even light work is followed by renewed activity and an early breakdown.

#### *Return to work after illness*

I previously stated that features inherent in some occupations modify disease problems in industrial areas. Account should always be taken of these features when men return to work, especially after a period of illness. This may be illustrated by the high pneumonia incidence among workers in certain trades, particularly those in which extremes of temperature and excessive humidity occur. In this connection, workers proposing to resume work in steel mills, operating pulp and paper machines, in foundries and other like occupations, deserve special consideration. When their absence from work has been the result of pneumonia it would seem that a longer than usual period of convalescence is advisable before they are permitted to return. In relation to steel workers in a Canadian plant, Day (3) reports a high incidence of gastrointestinal disorders. He considers this experience to be partly due to conditions of work. His paper is of interest because among other things it illustrates how special conditions of work may give rise to irregularities in regard to the taking of food. It also suggests that occupation sometimes influences the consumption of alcohol.

The question of alcohol consumption in relation to the industrial worker is of more than passing interest in certain trades. Aside from other considerations, the effects of some occupational poisons, especially those of volatile solvents such as benzol, carbon tetrachloride, etc., are always much more serious in the alcoholic. Acute illness in those who work in cyanamid is apt to develop if alcohol is used during the working day.

Some substances used in industrial processes gain access to the body through the skin. In operations where these are employed carelessness and faulty hygiene on the part of the users materially increase the risk of poisoning.



In this category analin and, at the present time particularly, trinitrotoluol and dinitrobenzene are to be found.

Tuberculous workmen are often a problem when resumption of work is under consideration. As a rule, these should return to their accustomed occupation or be placed in sheltered work when the cure is completed, having due regard to the infectious nature of the disease. In this climate, individuals who have had active disease do not do well out of doors. It should be remembered that outdoor occupations in the main involve heavy manual labour beyond their physical capacities. Outdoor work also entails exposure to climatic conditions often quite unsuited to these cases.

I have tried to indicate briefly the importance which attaches to knowledge respecting conditions of work in the handling of industrial patients. Not infrequently the problems which these patients present are complicated by the circumstance of Workmen's Compensation. I would like to stress the necessity for careful judgment in cases likely to involve compensation, particularly in respect to what information is given the patient regarding diagnosis until the case is finally decided. One should always consider the bad psychological effect which differences of medical opinion create in the individual case.

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# Fallacies Associated with Environmental Control of Disease\*

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THE control of man's environment against the influence of disease gives rise to many misconceptions. The significance of various conditions is not always appreciated either by the layman or by the professional worker. It is not surprising that this confusion does occur. It is accentuated by voluminous references to health and disease in the popular literature and in commercial advertising. The final result is that the layman has little opportunity to acquaint himself with facts. Many of his beliefs are based on assumptions which have long been shown to be false.

Man must, of necessity, be influenced considerably by his environmental conditions at work, at home, and at play. We are concerned primarily with those which may affect his health or give rise to the spread of disease. The real problem is to determine the relative importance of the different items.

The greatest confusion occurs where an attempt is made to distinguish between those conditions which may be definitely associated with disease and those which merely cause discomfort or inconvenience to the individual. It is a popular fallacy for the layman to consider as a health menace anything which is offensive or inconvenient to him. He is motivated in this by the hope that in making his complaint some public action will follow and will relieve him of the responsibility of proceeding on his own initiative, and at his own expense. Such a view cannot be accepted by health departments although complaints of this kind may prove embarrassing.

A sound recognition of first essentials in disease control is imperative. Such inconveniences and discomforts as odours, smoke, noise, and surface drainage cannot be considered in the list of causes of disease. Some of these may be very objectionable to the aesthetic sense, and they should be corrected, but the reason for such action can scarcely be said to be a specific health hazard. So much emphasis is placed on such things as these that the more important factors may be overlooked entirely.

In the field of sanitation the factors of health significance have to do with bacterial pollution. This field includes water supplies, foods, disposal of sewage and wastes, plumbing, housing, and related matters. Most of these are capable of transmitting infection from sick to well persons, under certain conditions. Consequently, in the field of environmental sanitation, it is the bacterial infections which require primary control. The channels through which these can travel

\*Presented at a Stated Meeting of the Academy of Medicine, Toronto, April 2, 1940.

must be guarded continuously. The action of bacteria in the destruction of organic material may create offensive conditions, but they should not be responsible for any deviation from the objective set for the safety of the individual.

### *Viability of Organisms*

One of the perplexing problems in the control of man's environment is the viability of pathogenic organisms under different conditions. These conditions vary tremendously, some being favourable to the protection of the bacteria, and others definitely inimical. Such problems arise as how long bacteria will live in water, in sewage, in butter, cheese and in various other materials. This knowledge is essential if the control of these diseases is to be assured.

There is misunderstanding in respect to the factors tending towards the destruction of bacteria. It is not always recognized that such organisms as those of typhoid fever tend to die off rapidly outside the human body. It is the greatly extended life-time of these organisms under cold-weather conditions and where a suitable food supply is available that complicates the control program. It is not always appreciated that bacteria will live in ice cream for years and that in ice there will be some survivors for several months at least. There appears to be some belief that in the freezing of water these bacteria are destroyed. While a high proportion of bacteria is killed, freezing does not render the material safe. Similarly, typhoid and related organisms may live for several months in butter and other dairy products. Information on the viability of these bacteria is obviously necessary when the danger of disease is considered.

No longer is there uniformity in environmental conditions for the population of this country. They vary from the congested urban centre to the sparsely settled rural areas which are becoming increasingly attractive for summer vacationists. The city dweller is protected in his environment by safe water, supervised foods, satisfactory disposal of wastes, and in other ways. Only when he travels to less well equipped centres does he face a new set of conditions.

The extensive use of the automobile has made tourists of most urban dwellers. Their lack of familiarity with the problems of rural environment may result in danger. Tourist travel is especially heavy in Ontario where vacation lands are so abundant. It is here that fallacies in respect to disease prevention are common. These conditions deserve special mention, and some consideration is given to them in this discussion.

### *Water Supplies*

Drinking-water supplies have always been important as an environmental factor likely to be dangerous to health. Many false impressions exist, however, which may lead to danger. In Ontario, surface waters are most commonly used by municipalities. The necessity for treatment of these is not always recognized to the extent that it should be, but provincial supervision can be exercised over public supplies where it is not feasible for private ones.

In but few instances can surface waters be used safely without treatment. There still exists some notion that the appearance of the water is an indication

of its quality. Such an idea has no foundation in fact. Similarly, the belief that running water purifies itself in the course of a few miles is not true if bacteriological safety is the issue. This notion is probably based on the change in oxygen and biological content of the water in a flowing stream. The tourist is unwise who drinks untreated water from an unknown surface stream.

Water treatment is to-day well standardized. It consists of filtration and chlorination. Filtration is used not only to remove turbidity and colour but also to prepare the water so that chlorine can be effective as a sterilizing agent. The value of chlorine is limited by the condition of the water.

Chlorine is now available in a convenient form for the summer tourist or for anyone who has to leave home and may not be able to obtain water of known safety. A two-bottle outfit is prepared by the Ontario Department of Health for this purpose. It is so arranged that the correct dosage is determined by a simple colour test.

Taste in water supplies has received much consideration in recent years. Tastes are attributed all too frequently to an overdose of chlorine. Instead of this, it may be caused by too small an amount having been added. Objectionable tastes frequently result from a combination between chlorine and some phenol compound. Even very small amounts of the latter can cause offence. One of the best known methods of counteracting this is to add such a high quantity of chlorine that it will destroy the taste-producing substance. Hence, too small an amount of this chemical rather than an overdose may be the cause of the taste.

The chemical composition of water is likewise the basis for much misunderstanding. However, there is no evidence that a water containing much hardness has any adverse effect even where the hardness is excessive. Iodine in the waters of Ontario is negligible. Mineral waters have not been favourably considered here, although supplies are available similar to those which attract the health seeker.

### *Disposal of Wastes*

The satisfactory disposal of sewage and wastes from a community or from the individual home involves difficulties and some uncertainty. The objective is often lost sight of, and attempts are made to do what is unnecessary or what is not feasible. Contrary to general opinion, the destruction of bacteria is not the most common requirement, but rather the production of an effluent which will be inoffensive.

The summer vacationist is faced with this problem, and he must provide means which will be suitable to conditions at the cottage or camp. Water-carried systems with septic tanks are in common use, and they give good results when properly installed and operated. There is probably more confusion about the operation of septic tanks than most similar equipment. The impression seems to prevail that the bacteria in the tank are sensitive and must be cultivated carefully. There is little foundation for the oft-expressed warning that no disinfectants, soaps, cleansing compounds, and similar material can be used in a septic tank. This tank is primarily a settling tank, and little objection can be

found to the use of these materials in moderation. The use of yeast cakes and other such substances to start the action of the tank is quite unnecessary.

When does the disposal of wastes constitute a menace to health? Many people have the impression that any sewage discharged into a stream or water supply from which there is an odour is likely to be dangerous to health. Unless we recognize the ancient fallacy that odours produce disease, there is but little health significance to a condition of this kind. It is only where there is a drinking-water supply or a bathing beach involved that a health hazard presents itself. To-day chlorination is used extensively as a supplement to other sewage treatment processes where bacterial reduction is an objective.

#### *Country vs. City*

There is a mistaken feeling, so often expressed, that living conditions in the country are so much more healthful than those in the city. As far as diseases associated with environment are concerned, this is not borne out by the facts. To-day it is rural areas that are responsible for such infections as typhoid, paratyphoid, bovine tuberculosis, undulant fever and other environmental illness. The old idea that milk and food obtained by the consumer directly from the country is safe, is untenable under present conditions. The urban dweller with the protection afforded him is much safer than the man in the country.

#### *Food*

Food is one of the factors in man's environment which probably causes more confusion than anything else. This is particularly so for the tourist. The requirements of the human body are variable, and it is in this that advertising and propaganda have a great influence in confusing the consumer. Apart from the content of the food the important feature in the control of disease is what bacterial infections may occur, and how these may be avoided.

Milk is the most easily contaminated food, and since it is necessary for it to receive much handling and pass through different processes it is not unlike the water supply in its requirement of close supervision. Pasteurization is extending rapidly, but there are many false impressions circulating concerning this process and other methods which might be suggested in its place.

How can milk be made safe? In theory there may be different alternatives but the practical solution of this problem, under commercial conditions, is something entirely different. The statement is frequently made that the testing of cows for tuberculosis, infectious abortion, and mastitis is all that is required. Such a program has many deficiencies. Even if it were possible to control these diseases in the cow it would in no way meet the situation. Typhoid fever has always been responsible for the greatest number of milk-borne epidemics, although not the highest number of cases of illness. This and other diseases are in no way associated with the health of the animal.

Pasteurization has been found to be the one method by which this difficulty can be overcome. This is a simple heat treatment of thirty minutes at 143°F. The food value of milk has been proved by carefully controlled tests to be altered

to no significant degree by this heat treatment. Experiments on animals and in humans have left little doubt about this, in spite of assertions by uninformed and prejudiced propagandists. Pasteurization now ensures the safety of about 92 per cent. of the milk sold in this province.

There is a mistaken view that pasteurization is a necessary process for urban centres, but is not needed in the country. This is far from the truth. In recent years, milk-borne diseases have been more prevalent in the small centres. As pasteurization is extended more effective control can be anticipated.

### *The Home Environment*

The environment in which the citizen lives has received a good deal of attention. Housing and all its many phases have been stressed. Part of this is not so much public health as a question of standards of living. Plumbing in residences has been emphasized as a factor in the control of disease, on the assumption that poor plumbing caused disease. It is well that some analysis of the situation should be made. It is true that plumbing may prove dangerous under certain conditions. Some of these have been experienced in hotels, hospitals, and other buildings where there was a cross-connection between the drinking water and the sewers and drains. One of the major points in the plumbing system is to ensure that no connections shall exist between water lines and other pipes which will permit contamination of the former. There are numerous situations, if uncontrolled, in which this can take place. From the standpoint of disease prevention this is about the only point of health significance in plumbing.

The value of adequate plumbing in public health has been pointed out repeatedly by those who were somewhat partial. Apart from the points of contamination of the water supply, as already outlined, plumbing installations are not directly associated with the control of disease. Certain requirements are placed in plumbing codes which are of little significance in preventing disease but which are placed there in order that the system will function better in the carrying away of wastes. Odours from plumbing fixtures might be objectionable but not the cause of disease.

In the drainage of buildings and premises, the layman criticizes any condition which results in stagnant water and he makes his complaint known to the health officer or his physician. He is convinced that this will result in an outbreak of some disease, though just how this is to take place is not known. This is purely a drainage problem and should be regarded as such rather than as something which might lead to an epidemic.

It is apparent that there are many fallacies associated with the sanitary environment of the individual. Some of these result from lack of knowledge and some from an enthusiasm for betterment. A good deal can be done by the private physician and by the health worker to correct these misunderstandings and to lead the public to a better conception of the more essential factors in health protection.

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## AFTER-CARE AND REHABILITATION

IT is more than a coincidence that two papers on the after-care and rehabilitation of those who have suffered from tuberculosis should be presented in this issue. The broad subject of after-care with particular reference to rehabilitation is presented by Dr. R. J. Collins, immediate Past President of the Canadian Tuberculosis Association, and an actual trial which is being made in British Columbia is outlined by Dr. W. H. Hatfield. These papers indicate that the subject is prominently before those who are leading in the control of tuberculosis in Canada. It is a recognition of the fact that the best plan of tuberculosis control, involving the finding of new cases and their treatment in sanatorium, is incomplete and to a considerable degree ineffective unless patients leaving the sanatorium receive not only after-care but employment suitable to their needs. A certain number, particularly those with minimal lesions, are able to return to normal economic life, but the more serious cases require employment of such character that it will permit of the maintenance of the condition of health achieved by sanatorium treatment. These persons must be considered sub-standard and their working capacity permanently reduced.

One of the outstanding authorities in England, Sir Pendrill Varrier-Jones, established the Papworth Village Settlement in 1915. The result of his vision and the success of his leadership have established the value of the village-settlement scheme. This particular plan is intended for the permanent colonization of those patients who have still regularly positive sputa or who have had repeated relapses. It is not intended to be a settlement of only arrested cases. Other plans of employment for arrested cases have been developed in Europe and in the United States. The limitations of such efforts are fully realized, including the problem of capital and the organization of sales of manufactured articles. Dr. Hatfield has made an encouraging start in Canada and the experiment in Vancouver which is being conducted under his direction will be followed with great interest. In his plan, provision is being made for those who need rehabilitation because of cardiac or other chronic disease.



The necessity for after-care is recognized. It presents one of the most difficult problems in social medicine. Its solution depends not only on expert leadership and organized philanthropy but on some plan of co-operation with industry.

#### "ON THE STATE OF THE PUBLIC HEALTH"

THE annual report of the Chief Medical Officer of the Ministry of Health of Great Britain, which bears this title, has become familiar to public health administrators throughout the world as a document of international interest. The 1938 report of Sir Arthur MacNalty, recently issued, affords a comprehensive picture of the state of public health in Great Britain and the striking advances which have been made. It is a pre-war report, although here and there references are made to the possible effect of war and a chapter is devoted to the measures which were being taken in connection with the establishment of emergency hospitals and the medical arrangements in connection with civilian evacuation.

The improvement in public health has continued. There was a further reduction in the infant mortality rate, which in 1937 was 58 and in 1938 reached the lowest on record, namely 53. The crude death rate was 11.6 per 1000 persons, against 12.4. The birth rate showed a slight increase—from 14.9 for the previous year to 15.1 per thousand. If the infant mortality rate for the decade 1901-1910 had prevailed in 1938, the expected number of infant deaths would have been almost two and a half times the number recorded. The maternal mortality rate was 4.10 per 1000 living births, the lowest recorded. The most marked reduction occurred in puerperal sepsis and undoubtedly reflects the efforts that have been made to prevent infection, and also the use of sulphanilamide. Sir Arthur draws attention to the lack of improvement in the neonatal mortality rate, which has remained unchanged for years. References are made to the findings of an enquiry into maternity deaths by the county of Hampshire as an effort to improve obstetrical practice in a rural area. The substitution for day nurseries of day foster-mothers in Dagenham and of approved foster homes in Birmingham, as a means of furthering the protection of child life, is of interest.

Deaths from tuberculosis numbered 26,176, marking a further decline in the number of deaths from this disease. The number of primary infections of pulmonary tuberculosis reported was 37,879. Twenty-seven per cent. of this number related to persons between the ages of 15 and 25. During the year 114,334 new cases were dealt with in the Dispensary Service. This represents approximately 14,000 more new cases than were examined in 1935, indicating more frequent reference of patients by general practitioners and the greater use of X-ray examination. There was an increase of 26 per cent. in the number of adult contacts examined. The serious problem of tuberculosis of bones and

joints is reflected by the fact that in 1937, 569 deaths from this cause were reported. Approximately 3600 patients complete treatment in residential institutions each year, and of this number 2000 are adults. Of the deaths from tuberculosis of bones and joints 80 per cent. occur in persons 25 years and over. In commenting on the reduction in the number of deaths since 1921, when double the number was recorded, it is pointed out that the provision of special hospitals was an important factor, as well as the very real reduction in incidence of infection. The increased number of adults receiving institutional care probably reflects the fact that adults are taking advantage of the special facilities available. Of the persons dying from tuberculosis, 42.7 per cent. died in institutions, reflecting the steadily increasing use of sanatoria in the treatment of this disease. The percentage, however, is very much lower than in Canada and in certain other countries.

During the year 299,867 cases of infectious disease were notified. The fact that 65,008 cases of diphtheria were included in this total comes as a shock, since the incidence of diphtheria on this continent has fallen in such a dramatic fashion during the past decade. The number of diphtheria cases in 1938 constituted an increase, as 57,795 were recorded in 1936. There were 2,931 deaths from this disease. Analysis of the causes of death in age periods shows that diphtheria is now the most important fatal disease at school ages, paralleling the experience of fifteen years ago in almost every province of Canada. Sir Arthur emphasizes the value of immunization against diphtheria but states that the public has not yet sufficiently appreciated its value. The high incidence of diphtheria in England is a reminder to us of the menace of this disease. Diphtheria can be controlled only by immunization with diphtheria toxoid. We know how this can be accomplished. Medical officers of health, private physicians, and parents alike must share the responsibility of seeing that every preschool child is protected.

# THE ASSOCIATION'S WORK DURING 1939-40

## (Part I)

### REPORT OF THE HONORARY SECRETARY

IN presenting this report as your Honorary Secretary, I am confronted with the necessity of choosing one of three alternatives. I might be retrospective and refer to the accomplishments of the Association during the twenty-eight years of its existence, or I might be visionary and outline in more or less detail plans for its future; or I might limit my observations to a simple unvarnished statement of those things which might rightly be included in such a report. In view of the situation as it presents at the moment of writing, I have chosen the last.

The annual meeting of the Association was held in Toronto, June 12th-14th, in conjunction with the annual conference of Ontario Health Officers. The registration was one of the largest in the Association's history, exceeding 700. Among the distinguished guests were: Sir Arthur MacNalty, K.C.B., K.H.P., Chief Medical Officer of the Ministry of Health, Sir William McLean, K.B.E., Representative of the British Secretary of State at the New York World's Fair, Professor Edward P. Cathcart of Glasgow University, Dr. H. E. Wilkinson of Bermuda and representatives from the Army, Navy and Public Health Services of Cuba.

The Association extended its interest in the field of health administration by a survey of full-time health services in Canada. The purpose of the survey was to provide authoritative information concerning the number of trained personnel employed, scope of the community organization and the extent of the expenditures for health, hospital and associated welfare services. Some 85 municipalities were included in the study. The data so gathered should present an accurate picture of the service being extended in the larger urban centres and permit those administratively responsible for the public health program in such centres to indulge in constructive comparisons in terms of staff, extent of service and cost of administration, to the advantage of all concerned.

Fifty-four candidates presented themselves for examination leading to the Certificate in Sanitary Inspection (Canada). These examinations were held in seven provinces on September 20th, 21st and 22nd. Since this unique venture on the part of a professional agency was initiated in 1935, certificates have been awarded to 180 sanitary officers. The manual of instruction for sanitary officers has more than justified the amount of time and effort expended by the contributors to this book. A new edition was published in January of this year, containing 275 pages. This text is not only appreciated by those candidates seeking certification, but by all those engaged in this phase of the community health program.

There is manifest evidence of the value of this phase of the Association's

many-sided program. Certification is now fast becoming the standard of qualification for employment in municipal and provincial health departments. Not only is there a better appreciation by the appointing bodies of the contribution of the sanitary officer to the health program, but it raises the status of the individual inspector and has the added advantage of taking such appointments out of the field of local politics. More than 50 applications have already been received for this year's examination, which will be held early in the month of September. The Association is more than grateful for the cooperation extended by the officers of the several provincial departments of health and the provincial examining boards.

The conduct of the third Canadian Rural Health Conservation Contest during the year again demonstrated the value of this contest as a method of stimulating local interest in health departments. The contest is held through the cooperation of the American Public Health Association and with financial support granted by the W. K. Kellogg Foundation. Discussion of local problems and their possible solution with Dr. James Wallace, Field Director of the American Public Health Association, who visited most of the 30 participating units during the year; the participation of the local committee with the medical officer in preparing the schedule which outlines the community's health program; and the detailed analysis of the program by the Grading Committee, following the schedule's completion, help to make the contest one of the most effective means of strengthening rural public health services.

The need for uniformity in regard to milk legislation has been manifest for some years. Appreciating this need, the Committee on Milk Control continued its efforts to prepare an acceptable Standard Milk Ordinance. It is anticipated that this ordinance, which has been submitted for consideration to the various provincial departments, will ultimately serve as the basis for guidance in the matter of milk legislation.

The Committee on Milk Control is also making a survey of the extent of milk distribution in all municipalities with a population of 2,000 and over, including details of the control measures in effect. The findings of the survey will again provide an answer to those who question the progress which is being made throughout Canada in regard to safe milk, in both rural and urban areas. The report of the Committee will be published in a special Milk Number of the JOURNAL, to be issued in September.

The eighth annual Christmas Meeting of the Laboratory Section was held in Toronto on December 18th and 19th. It was attended by 125 bacteriologists, pathologists, immunologists, and chemists from all parts of Canada. This meeting affords an opportunity for presentation and discussion of reports of pieces of research and other studies which are being carried out in various laboratories throughout the country. Many of these reports are subsequently published in the CANADIAN PUBLIC HEALTH JOURNAL. A Laboratory Supplement was introduced in the March 1940 issue for the purpose of making possible the publication of additional papers, since facilities for publication of laboratory

papers are so limited in Canada. It is planned to continue the printing of such a supplement from time to time as the need arises.

Several years ago a committee was appointed by the Section to study the possibility of effecting economies and improving efficiency by standardizing as far as possible the outfits supplied by provincial laboratories to physicians and municipal laboratories for forwarding material for laboratory diagnosis. In the larger provinces thousands of dollars are expended annually in supplying these outfits. This year it was gratifying that when changes were proposed by the Federal Postal Department in respect to the mailing of such containers, the committee was able to present sufficient in the way of information to the provincial authorities to permit of a suitable adjustment of the difficulties arising from the proposed regulations. This is merely a further instance of the practical value of the work carried on by a standing committee over a period of years; others could be cited.

Probably no part of the work of the Vital Statistics Section is productive of greater value than the continuous effort being made to strengthen the teaching of vital statistics in the various Faculties of Medicine. Medical statistics form the basis of every public health advance and the training of medical students as to the significance of the proper filling in of both morbidity and mortality reports will inevitably result in increased interest and more effective participation of physicians in all matters relating to the public health. Copies of the special exercise are made available without charge for use of all students. Studies of the confidential death certificate, the accuracy of certification as to the cause of death, and classification of causes of morbidity have been continued; and a further study of the form of stillbirth certificates is being made. The committee is preparing a report at the request of the Registrar Generals and Provincial Health Officers, as to the most suitable form for the presentation of vital statistics in each of the nine provinces.

"The Development of Public Health in Canada", a review of the history and organization of public health in the nine provinces, with an outline of the Health Section of the Federal Department of Pensions and National Health, was published in April, 1940. The book comprises a series of articles prepared with the cooperation of the Federal and Provincial Health Departments which were published in the JOURNAL during the past few years and have been brought up to date for publication in convenient collected form. This is the best reference book on public health in Canada available in this country and should serve a useful purpose both in teaching colleges and reference libraries.

The membership in the Association remains more or less constant, the figure at the end of 1939 being approximately 2,800.

The average audited circulation of the JOURNAL for the twelve months ending December 31, 1939, was 3,262, an increase of 100 a month over 1938.

During the year five distinguished members of the Association passed on, namely:

Pio H. Laporte, M.D., Minister of Health and Labour for the Province of New Brunswick, died June 28, 1939.

John William McIntosh, B.A., M.B., D.P.H., until retirement in 1938 Senior Medical Health Officer of the Vancouver Metropolitan Health Committee, died August 12, 1939.

Henry Esson Young, B.A., M.D., C.M., LL.D., Provincial Health Officer of British Columbia for the past twenty-three years, died October 24, 1939.

John Andrew Amyot, M.B., C.M.G., formerly Deputy Minister of the Department of Pensions and National Health, died February 16, 1940.

James Roberts, M.D., for thirty-five years Medical Officer of Health for the City of Hamilton, Ontario, died March 15, 1940.

During the year 1939 the Association paid tribute to the public health achievements of Sir Arthur MacNalty, K.C.B., M.D., F.R.C.P., K.H.P., Chief Medical Officer of the Ministry of Health of Great Britain; A. J. Douglas, LL.D., B.A., M.D., C.M., F.R.C.P.(C.), Medical Officer of Health of Winnipeg from September, 1900, to his retirement on April 30, 1939; Dr. John Knox McLeod, Medical Officer of Health of Sydney, N.S., since 1907; and Dr. John J. Cameron, Medical Officer of Health of Antigonish, N.S., since before the turn of the century, by conferring honorary life membership on these distinguished persons in public health.

In conclusion, I wish to again express to The Canadian Life Insurance Officers Association our most grateful thanks for their continued support. This tangible evidence of appreciation of the Association's efforts is most heartening to your officers and the Association's membership. Reference should also be made to the continued extension of office space to the Association by The Health League of Canada and to the provision of similar facilities by the School of Hygiene, University of Toronto. This generous gesture of cooperation is particularly appreciated by your executive officers.

In order to avoid the charge of complacent acceptance of the continuous service rendered by Dr. R. D. Defries and Mr. R. L. Randall, might I again make reference to the significance of the contribution made by these two mainstays of the Association.

May, 1940

J. T. PHAIR, *Honorary Secretary*

#### REPORT OF THE HONORARY TREASURER FOR 1939

**I**N presenting the report of the Honorary Treasurer last year, the plans of the Association and its enlarged activities were outlined. For the first full year the Association has had the services of Mr. Robert Randall, who for seven years had actively participated in the work of the Association, as Assistant Secretary. Dr. J. T. Phair has continued, as Honorary General Secretary, to give direction to the work and the members of the Executive Committee are indeed pleased that Mr. Randall has been able to assume such a measure of responsibility, relieving Dr. Phair of a great part of the detail work. The Executive Committee is deeply conscious of the Association's debt to Dr. Phair. For eighteen years he has given leadership as Honorary General Secretary and it is their sincere

hope that, with the assistance now given by Mr. Randall, Dr. Phair may continue to give direction to the program and policies of the Association.

The policy of strengthening the work of national committees by the allocation of funds, including the payment of an honorarium to the chairman or secretary, has also been developed. Leaders in public health throughout Canada are willing to give generously of their time and provide the direction which they alone, from their experience, can give, but the detailed work associated with the obtaining of data and the preparation of reports, etc., must be done by one or more persons who are supplied with the necessary facilities. The undertaking this year of a survey of all health departments having a full-time medical officer of health was made possible by this policy. Dr. Eric L. Davey, D.P.H., was appointed on a part-time basis in June and during the remaining months of the year he gave his time to the study of the survey reports, as well as participating in the work of the Milk Committee. The survey of full-time health services will, it is believed, be an important contribution, providing a record of the pre-war status of health services in these municipalities. Similarly, it has been possible to extend the work of the Milk Committee, and during the year a standard milk ordinance was prepared.

The budget of the Association for 1939 called for the expenditure of \$12,000.00. The advent of the war and the uncertainty that preceded it prevented the carrying forward, during the fall, of certain projected work. The expenditures for the year amounted to \$10,081.00. On such a limited budget the Association is conducting a national work of a highly important character. The work is being accomplished by the freely given services of public health leaders. Such a budget would hardly permit of the maintenance of a salaried general secretary and the minimum of office assistance, apart from the publication of the JOURNAL and the other activities of the Association. Our present policy of having a full-time assistant secretary and utilizing our resources to the full to support the work of the various national committees is a policy which is meeting, at present, the needs of the Association. Aside from the responsibilities mentioned, the publication of the JOURNAL, the work of the Committee on the Certification of Sanitary Inspectors, and the arrangements for national and other meetings, are in themselves sufficient to occupy fully the time of the assistant secretary.

The income of the Association for 1939 showed a slight increase over 1938 and amounted to \$10,559.53. A surplus of \$478.33 is reported for the year's operations. During the year the Canadian Life Insurance Officers Association contributed a grant of \$3,500.00. This contribution permitted the Association to undertake the survey of full-time health services, the enlargement of the program of the Committee on Milk Control, and the strengthening of all the undertakings of the Association in its program for improved local health services.

The statement of assets and liabilities of the Association shows a surplus of \$7,308.35, which includes the original purchase price of the CANADIAN PUBLIC HEALTH JOURNAL.



The publication of the JOURNAL has been maintained at that high level which has characterized it in the past. Through the strictest economy the printing costs were reduced for the year by \$200.00.

Reference should be made to the work of the Committee on the Certification of Sanitary Inspectors. The registration and examination fee is \$15.00. A small surplus is shown in the revenue-and-expenditure account but it must be remembered that no share of the office expenses for the conduct of the work has been charged. The Association therefore is contributing very largely to the conduct of this work.

During the year the national annual meeting was held in Toronto in June. It is gratifying that the entire expenses were met through the sale of exhibit spaces and the revenue from a registration fee. It is necessary to point out that the Association must depend upon Provincial assistance for the annual meetings, since it is seldom possible to obtain sufficient revenue from the sale of exhibit space in the majority of cities.

As in the past, the Association has been most fortunate in not being obliged to provide office space, rent, and telephone service. The Director of the School of Hygiene, University of Toronto, has been generous in making available office space for the editorial and financial work of the Association, and the Health League of Canada, in their new quarters at 111 Avenue Road, Toronto, have also provided office space. These provisions are much appreciated and represent a distinct saving to the Association.

In conclusion, may I express my appreciation of the services of Mr. William Nichols in the conduct of the work of the Treasurer's office.

March, 1940.

A. L. McKAY, *Honorary Treasurer*

#### CANADIAN PUBLIC HEALTH ASSOCIATION REVENUE ACCOUNT

FOR THE YEAR ENDED 30TH DECEMBER, 1939

##### *Revenue*

|  |            |                    |
|--|------------|--------------------|
| Advertising .....  | \$3,583.75 |                    |
| Membership Fees .....                                    | 3,134.10   |                    |
| Examinations for Sanitary Inspectors .....               | \$ 854.46  |                    |
| <i>Less: Expenses (excluding salaries)</i> .....         | 664.95     |                    |
|  |            | 189.51             |
| Sale of Reprints .....                                   |            | 91.68              |
| Canadian Life Insurance Officers Association—Grant ..... |            | 3,500.00           |
| Annual Meeting:  |            |                    |
| Revenue .....  | \$1,046.92 |                    |
| <i>Less: Expenditure</i> .....                           | 1,039.09   |                    |
|  |            | 7.83               |
| Bond Interest .....                                      |            | 45.00              |
| U.S. Premium, etc. ....                                  |            | 7.66               |
|  |            | <u>\$10,559.53</u> |

*Expenses*

|   |            |           |
|---|------------|-----------|
| Printing .....                                    | \$4,488.25 |           |
| Postage on Magazines and Mailing-Cost .....       | 685.60     |           |
| Commissions .....                                 | 817.58     |           |
| Advertising and Promotion Expense .....           | 57.08      |           |
| Honoraria .....                                   | 261.50     |           |
| Salaries .....                                    | 2,723.33   |           |
| Stationery and Office Supplies .....              | 181.74     |           |
| Postage and Telegraph .....                       | 310.34     |           |
| Laboratory Section Expense .....                  | 142.04     |           |
| Canadian Rural Health Conservation Contest .....  | 77.17      |           |
| Survey of Public Health Expenditures .....        | 90.99      |           |
| Vital Statistics Section Expense .....            | 1.42       |           |
| Public Health Nursing Section Expense .....       | 2.65       |           |
| Miscellaneous Expense .....                       | 118.51     |           |
| Provision for Depreciation—Office Equipment ..... | 19.93      |           |
| Discounts Allowed and Bank Exchange .....         | 103.07     |           |
|   |            | 10,081.20 |

Excess of Revenue over Expenditure for the year, transferred to Surplus Account \$ 478.33

CANADIAN HEALTH ASSOCIATION  
BALANCE SHEET

AS AT 30TH DECEMBER, 1939

*Assets*

|   |            |            |
|---|------------|------------|
| Cash on Hand .....                        | \$ 486.05  |            |
| Cash in Bank .....                        | 3,326.81   |            |
| Accounts Receivable—Advertising .....     | \$ 323.20  |            |
| Subscriptions .....                       | 792.75     |            |
| Reprints .....                            | 337.22     |            |
| Total .....                               | \$1,453.17 |            |
| Less: Reserve for Doubtful Accounts ..... | 35.00      |            |
|   |            | 1,418.17   |
| Deposit with Postmaster .....             | 15.00      |            |
|   |            | \$5,246.03 |
| Investments—Province of Ontario 4½%       |            |            |
| Bonds due in 1949—Cost .....              |            | 1,012.50   |
| CANADIAN PUBLIC HEALTH JOURNAL .....      | \$1,000.00 |            |
| Office Equipment .....                    | \$ 99.65   |            |
| Less: Reserve for Depreciation .....      | 49.83      |            |
|   |            | 49.82      |
|   |            | 1,049.82   |
|   |            | \$7,308.35 |

*Liabilities*

|  |           |           |
|--|-----------|-----------|
| Accounts Payable .....                 | \$ 500.91 |           |
| Prepaid Subscriptions .....            | 348.23    |           |
| Accrued Commissions and Expenses ..... | 41.95     |           |
|  |           | \$ 891.09 |

*Surplus:*

|   |            |            |
|---|------------|------------|
| Balance as at 31st December 1938 .....                                    | \$5,836.33 |            |
| Add:  |            |            |
| Adjustment re 1938 .....  | \$ 102.60  |            |
| Excess of Revenue over Expenditure for the year (See<br>Schedule A) ..... | 478.33     |            |
|   |            | 580.93     |
|   |            | 6,417.26   |
|   |            | \$7,308.35 |

Referred to in our report of this date attached.

TORONTO: 21st March, 1940.

GRAY, TESKEY & HILL,  
Chartered Accountants.

## REPORT OF THE EDITORIAL BOARD (1939-1940)

THIS report is the twelfth report of the Editorial Board which was constituted in 1928 when the Association took over the responsibility for the publication of the JOURNAL. It relates to the publication of the thirtieth volume of the JOURNAL. For thirty years the JOURNAL has appeared continuously as a monthly scientific journal in the field of Canadian preventive medicine. Its publication has been made possible through the years by the freely given services of members of the Association who believed that the JOURNAL was in a position to make an important contribution. Prior to the Association's assumption of responsibility, the JOURNAL had been maintained by Dr. Gordon Bates through the financial assistance of individual members. That the JOURNAL to-day has a wide circulation throughout this continent and is received in libraries in different parts of the world is the reward of those who have carried forward its work.

In reviewing the work of the Board last year, reference was made to the problem of publishing scientific papers and to the desire of the Editorial Board to serve as a medium, as far as possible, for the publication of technical papers in the broad field of preventive medicine. The problem of publishing a journal which would be of general interest to the various constituent groups of the Association, and of finding space to provide review articles, news and comment, has received further consideration this year. It was decided to publish papers in the laboratory field which were highly technical, and therefore of very limited interest to the general readers, in a section of the JOURNAL entitled "Laboratory Supplement". The supplement occupies additional pages and does not reduce the space available for general articles.

During 1939 the volume comprised 606 pages, presenting seventy-eight leading articles and abstracts of thirty papers presented at the 1938 Christmas meeting of the Laboratory Section. The March issue was devoted to an outline of the National Health Section of the Department of Pensions and National Health. A special industrial hygiene number was published in November, with the objective of drawing attention to the part which the medical officer of health may play in industrial hygiene, not only in the general supervision of the sanitation of industrial plants and the investigation of the occurrence of occupational disease, but also in stimulating the supervision of health by industry itself. The publication of abstracts of papers presented at the Christmas meeting of the Laboratory Section is, it is believed, of definite value to the contributors of papers, affording priority in scientific publication and giving to readers of the JOURNAL an intimation of the work which has been done. Some of the papers are published in full in other journals, and a number in full in the CANADIAN PUBLIC HEALTH JOURNAL.

The discontinuance during the year of the quarterly Letter from Great Britain, as a result of the war, was a matter of very great regret to the Editorial Board and to the readers of the JOURNAL. During the period of seven years Dr. George F. Buchan, F.R.C.P., D.P.H., Medical Officer of Health of the Borough of Willesden, London, had presented a review of developments in public

health which had been greatly appreciated. The letters were most informative and enabled Canadian public health workers to understand the significance of recent health legislation and social medicine as introduced in Great Britain.

#### CIRCULATION

The average monthly circulation (audited) for the year ended December 31, 1939, was 3,262 copies, as compared with 3,174 for 1938. During the year an average of 2,167 copies was mailed to physicians, 288 copies to public health nurses, 252 copies to other public health workers, 188 copies to scientific libraries in Canada, the U.S.A. and Europe, 62 copies to the leading hospitals in Canada, and 230 to institutions, associations, companies, newspapers, and exchange journals. The circulation has shown a further increase during the first months of 1940, the circulation for the month of April being 3,325. During 1939 the Association continued its policy of according to undergraduate medical students and public health nurses in training in Canada, membership, including subscription for the JOURNAL, at the rate of one dollar for two years.

The revenue from fees during 1939 amounted to \$3,134.00.

#### REVENUE FROM ADVERTISING

For the twelve issues of 1939 the revenue from advertising in the JOURNAL was \$3,583.75, compared with \$3,900.25 in 1938. This decrease was due to the fact that the revenue in 1938 was unusually high because of the publication of a special milk number with a greatly enlarged advertising section. Comparison might more fairly be made with the 1937 revenue, which amounted to \$3,056.50. The situation therefore may be considered very satisfactory because, as has been pointed out in previous reports, public health journals in general receive only limited advertising support. Major V. W. Dyas has continued to present the JOURNAL to advertisers in Canada.

#### PUBLISHING COSTS

The publication costs, including distribution charges and advertising commissions, amounted in 1939 to \$6,048.51, compared with \$5,855.21 in 1938. The small increase of \$183.00 was due to an increase in distribution charges, the actual printing costs being \$200.00 lower than in 1938.

#### THE DEVELOPMENT OF PUBLIC HEALTH IN CANADA

In April 1940 the Association published THE DEVELOPMENT OF PUBLIC HEALTH IN CANADA, a 184-page review of the history and organization of public health in the Provinces, with an outline of the present organization of the National Health Section of the Department of Pensions and National Health. The volume had its origin in a series of articles, prepared with the co-operation of the Provincial Departments of Health and the National Health Section, which

were published in the JOURNAL during the past few years. Publication in collected form was undertaken to provide a convenient record of the history of public health in Canada. The articles were extensively revised and brought up-to-date, charts outlining the organization of the Departments were added, and an appendix presenting provincial and federal health expenditures was included.

#### MANUAL FOR SANITARY INSPECTORS

The Editorial Board has cooperated with the Committee on the Certification of Sanitary Inspectors in the publication of a Manual. In January 1940 forty-five additional pages, including a 12-page subject index, were prepared and a new 275-page edition of the Manual was issued. Copies of the new material were made available to those who had purchased copies of the Manual since its first publication in 1936. Four hundred copies of the Manual have been distributed and another edition is now in preparation.

#### REPRINT SERIES

During 1939 there was a continuous demand for copies of SAFE MILK, the reprint of the special Milk Number published in June 1938, and the supply was soon exhausted. Orders for a total of more than 5500 copies could not be filled. It is planned to issue a fourth Milk Number next September. There is a small but steady demand for copies of MODEL PROVINCIAL HOUSING REGULATIONS, prepared by the Association's Committee on Housing and published in 1938.

In concluding this report, the Board desires to express again their appreciation of the action of the Provincial Departments of Health in continuing to include in the subscription list of the JOURNAL the medical officers of health and certain others of their personnel. The Board is very conscious of the opportunity which is thus presented to the Association to bring, through the JOURNAL, to every health officer in Canada and to other public health workers a helpful monthly journal in preventive medicine.

To Mr. Robert Randall the Board is particularly indebted for the additional responsibilities which he has assumed in the preparation of manuscripts and the details associated with the editing of the JOURNAL.

May, 1940.

R. D. DEFRIES, *Chairman, Editorial Board*

Annual Conference  
**ONTARIO HEALTH OFFICERS ASSOCIATION**  
ROYAL YORK HOTEL, TORONTO  
**June 13-14, 1940**

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## Program

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### THURSDAY, JUNE 13th—MORNING SESSION

- 9.00 a.m. **Executive Meeting.**
- 9.00 a.m. **Registration**—Foyer Convention Floor.
- Showing of Films.**
- 10.00 a.m. **MEDICAL OFFICERS OF HEALTH SECTION**—Crystal Ball Room. Chairman, C. A. WARREN, M.B., President.  
**Legislation and Administrative Problems:**
- 10.10 a.m. **General Statement and Outline of Recent Legislation in Ontario.** B. T. MCGHIE, M.D., Deputy Minister of Health.
- 10.30 a.m. **Interpretation and Application of Legislation in Terms of Local Health Administration.** JOHN T. PHAIR, M.B., D.P.H., Chief Medical Officer of Health.
- Specific Problems in Legislation and Administration, with particular reference to those presented within the last two years:**
- 11.00 a.m. **Problems in the Field of Sanitary Engineering.**  
A. E. BERRY, M.A.Sc., C.E., Ph.D.
- 11.10 a.m. **Problems in the Field of Laboratory Service.**  
A. L. MACNABB, V.S., D.V.Sc.
- 11.20 a.m. **Problems in the Field of Venereal Disease Control.**  
A. L. MCKAY, B.A., M.B., D.P.H.
- 11.30 a.m. **Problems in the Field of Tuberculosis Control.**  
G. C. BRINK, M.B.
- 11.40 a.m. **Problems in the Field of Public Health Nursing.**  
EDNA L. MOORE, Reg.N.  
Discussion will follow each of the reports listed above.
- 11.45 a.m. **Appointment of Standing Committees:**  
Committee on Nominations.  
Committee on Resolutions.

## THURSDAY, JUNE 13th—MORNING SESSION

### PUBLIC HEALTH INSPECTION SERVICES SECTION

- 9.00 a.m. **Registration**—Foyer Convention Floor.
- 9.00 a.m. **Showing of Films.**
- 9.30 a.m. **Meeting called to order.** Chairman, C. A. HARRIS, M.D., Medical Officer of Health, London.
- 9.30 a.m. **The Interest of the Veterinarian in Sanitary Measures.** C. D. MCGILVRAY, V.S., M.D.V., D.V.Sc., Principal, Ontario Veterinary College, Guelph.
- 10.00 a.m. **Dairy Plant Equipment.** A. E. BERRY, M.A.Sc., C.E., Ph.D., Director, Sanitary Engineering Division, Ontario Department of Health.
- 10.30 a.m. **Sterilization of Utensils.** C. K. JOHNS, B.S.A., M.S., Associate Bacteriologist, Department of Agriculture, Ottawa.
- 11.00 a.m. **Dairy Farm Inspection.** F. COTE, V.S., B.V.Sc., Food Inspector, Department of Public Health, Guelph.
- 11.30 a.m. **The Whence and Whither of Milk Sanitation.** ROBERT BREED, Ph.D., New York State Agricultural Station, Geneva, N.Y.
- Organization of Section and Election of Officers.**

## THURSDAY—LUNCHEON 12.15 NOON

### MEDICAL OFFICERS OF HEALTH SECTION

#### PUBLIC HEALTH INSPECTORS SERVICES SECTION

(Combined Session)

The speaker will be the Honourable HAROLD J. KIRBY, K.C., Minister, Department of Health of Ontario. On this occasion a welcome will be extended to those local Medical Officers of Health who have been appointed since the last conference; and also to the new section of the Association, viz. the Public Health Inspection Services Section, which has been organized during the past year, following the provision made at the 1939 meeting of the Conference.

## THURSDAY, JUNE 13th—AFTERNOON SESSION

### GENERAL SESSION—BOTH SECTIONS

Chairman, C. A. WARREN, M.B., Medical Officer of Health, York Township

- 2.00 p.m. **Presidential Address.** C. A. WARREN, M.B.
- 2.15 p.m. **Tests for Milk Quality.** C. K. JOHNS, B.S.A., M.S., Associate Bacteriologist, Department of Agriculture, Ottawa.
- 2.45 p.m. **Rabies Infection.** A. E. CAMERON, M.C., V.D., V.S., Veterinary Director General, Department of Agriculture, Ottawa.
- 3.15 p.m. **Equine Encephalitis:**
- Isolation and Typing of the Virus.** FRANK SCHOFIELD, D.V.Sc., Professor of Pathology, Ontario Agricultural College, Guelph.
- Immunization Studies.** CHARLES A. MITCHELL, V.S., D.V.M., Acting Chief, Animal Diseases Research Institute, Science Service, Department of Agriculture, Ottawa.



## FRIDAY, JUNE 14th—MORNING SESSION

### MEDICAL OFFICERS OF HEALTH SECTION

Chairman, C. A. WARREN, M.B., Medical Officer of Health, York Township

- 9.30 a.m. **Administrative Control of Public Health Nuisances.** A. E. BERRY, M.A.Sc., C.E., Ph.D., Director, Sanitary Engineering Division, Ontario Department of Health.
- 10.00 a.m. **The Educator Views the Health Needs of the Elementary School.** C. A. BROWN, M.A., B.Paed., Department of Education of Ontario.
- 10.30 a.m. **The Responsibility of the Part-time Medical Officer of Health with regard to the Schools.** C. D. FARQUHARSON, M.D., Medical Officer of Health, Scarborough Township.
- 11.00 a.m. **Modern Methods of Immunization of the Preschool and School Age Child.** DONALD T. FRASER, B.A., M.B., D.P.H., Professor of Hygiene and Preventive Medicine, University of Toronto.

## FRIDAY, JUNE 14th—MORNING SESSION

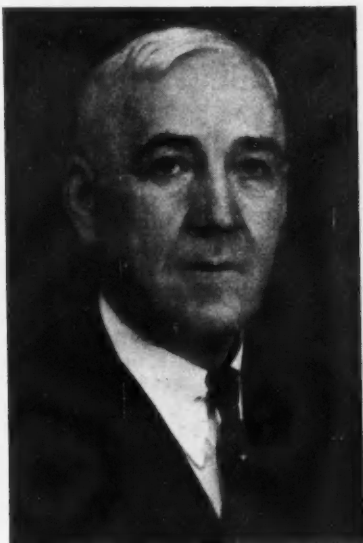
### PUBLIC HEALTH INSPECTION SERVICES SECTION

Chairman—to be appointed.

- 9.30 a.m. **Value of Food Inspection and Properly Trained Inspectors.** A. J. SLACK, Ph.C., M.D., D.P.H., Dean, Faculty of Public Health, University of Western Ontario, London.
- 9.45 a.m. **Parasitic Infestation of Fish.** J. D. DETWILER, M.A., Ph.D., F.A.A.A.S., Professor of Applied Biology, University of Western Ontario, London.
- 10.00 a.m. **Inspection of Bakeshops and Marketplaces.** A. R. YOUNIE, V.S., B.V.Sc., Food Inspector, Department of Public Health, St. Catharines.
- 10.15 a.m. **Ropy Milk, Its Cause and Prevention.** C. K. MADER, V.S., B.V.Sc., Department of Public Health, Kitchener.
- 10.30 a.m. **Staphylococcal Food Poisoning and Necessary Precautions to Prevent It.** ROBERT J. WILSON, M.A., Department of Hygiene and Preventive Medicine, University of Toronto.
- 10.45 a.m. **Inspection of Restaurants and the Advisability of Bacteriological Examinations of Material from Eating and Drinking Utensils.** W. A. GILL, V.S., Food Inspector, Department of Public Health, London.
- 11.00 a.m. **Cause of Off-Flavours in Milk.** J. FRANKLIN LAVERY, V.S., Veterinary Inspector of Dairy Farms, Division of Food Control, Department of Public Health, Toronto.



THE HONOURABLE HAROLD J. KIRBY, K.C.  
*Minister of Health  
Honorary President*



DR. C. A. WARREN  
*Medical Officer of Health, York Township  
President*

### FRIDAY, JUNE 14th—LUNCHEON SESSION Combined Sections

- 12.15 p.m. Luncheon.** Business Meeting of the Association.  
**Reception of Reports.**  
**Election of Officers.**

### FRIDAY, JUNE 14th—AFTERNOON SESSION

#### MEDICAL OFFICERS OF HEALTH SECTION

- 2.00 p.m. Methods of Syphilis Control.** W. H. AVERY, M.D., Medical Consultant, Department of Health of Ontario.
- 2.30 p.m. Up-to-date Knowledge of Nutrition for the Medical Officer of Health.** E. W. MCHENRY, Ph.D., Associate Professor of Physiological Hygiene, University of Toronto.
- 3.00 p.m. Streptococcal Infection of Wounds and Its Treatment.** RONALD HARE, M.D.(Lond.), Research Associate in the Connaught Laboratories, University of Toronto.

#### PUBLIC HEALTH INSPECTION SECTION

- 2.00 p.m.** Arrangements have been made for a field trip for the members of the Section.

## PUBLIC HEALTH ADMINISTRATION

### IMMUNIZATION IN PRINCE EDWARD ISLAND

An epidemic of a mild type of scarlet fever occurred fairly generally throughout Prince Edward Island last fall. Reports of as many as fifteen and thirty-five cases here and there in small towns and villages were sufficiently alarming for the Department of Public Health to try to prevent an outbreak in Charlottetown.

Accordingly, immunization for the children was offered, literature was distributed through the schools, and much publicity was given in the press. Unfortunately, before the work actually got under way, cases of scarlet fever appeared and continued to do so almost daily for about two weeks. A rapid survey of the schools disclosed two children with desquamating hands without apparently having had any noticeable symptoms.

Diphtheria immunization is an accepted part of school routine here but no immunization against scarlet fever had been done, so that the response was most satisfactory despite some opposition on the part of local physicians. Charlottetown has a school population of 2200. Fifteen hundred and five persons, including pre-school children and teachers, commenced the inoculations and 87 per cent. of these completed the series of five doses while 91.5 per cent. had three doses. The children did not mind the inoculations; in fact, they objected to them much less than to injections of diphtheria toxoid. No undue reactions were reported. Five children developed scarlet fever after having had one or two inoculations. After the second inoculation was given in all the schools the epidemic stopped abruptly and many of the children did not complete the series of inoculations because of this.

The pupils of grades IX and X and the teachers were the only ones given a preliminary Dick test. Of the former group of 200, 59.3 per cent.

had a positive reaction and 41.4 per cent. of the 71 teachers tested were Dick-positive. Because of the time factor (it was December, with the Christmas holidays in the offing) and the fact that various workers had shown that such preliminary testing was unnecessary, no younger children were Dick-tested.

No Dick testing was done following the inoculations. We feel that the parents fully appreciated the value of the demonstration and no doubt would support such a procedure if it were done periodically.

### *Diphtheria Immunization*

A province-wide diphtheria immunization campaign was conducted in 1939 as part of a program which is carried out every three years in the rural schools. Out of a rural school population of approximately 16,000, protection was given to 6,215 children in 471 schools, which necessitated over 1400 visits to these schools. The local physicians co-operated in assisting the Department of Health in accomplishing this work. In a ten-year period more than 27,500 children have been given protection against diphtheria, with the result that but one death has occurred in the province during the past five years, and the number of cases has averaged less than four a year during that period.—*Mona G. Wilson, Reg.N., Director of Public Nursing, Department of Public Health of Prince Edward Island, Charlottetown.*

### TYPHOID FEVER IN MANITOBA

SINCE the beginning of January, 1940, there have been in the neighborhood of 90 cases of typhoid fever, with 7 deaths, reported in Manitoba. Most of these cases have occurred during the past six weeks and have been concentrated in the municipality of Ste. Anne and the city of St. Boniface. As a result of this outbreak, approximately 4,500 persons have

been immunized against typhoid fever during the last month. Dr. M. Bowman, D.P.H., acting Epidemiologist for the Department of Health and Public Welfare, is in charge of the investigation.

#### REFRESHER COURSE FOR PUBLIC HEALTH NURSES IN NOVA SCOTIA

DURING the week beginning April 15, 1940, a refresher course was given the public health nurses on the staff of the Nova Scotia Department of the Public Health. The instructors were the leading officials of the Department and certain faculty members of Dalhousie University. Problems pertaining to administration, communicable disease control, sanitation, maternal and child hygiene, and social welfare were dealt with. Several round-table discussions were held and plans were projected for more intensive field activities, particularly in the rural districts. The opening and closing addresses were delivered by the Honourable Frank Davis, M.D., Minister of Health.

#### ROCKY MOUNTAIN SPOTTED FEVER AND SYLVATIC PLAGUE SURVEYS IN CANADA

THE Rocky Mountain spotted fever and sylvatic plague surveys are again being carried forward this year. Survey crews left Edmonton for Southern Alberta on May 4th. It will be recalled that this work is being conducted by the Department of Pensions and National Health in co-operation with the Provincial Governments of Alberta and British Columbia and with the assistance of the Rockefeller Foundation. The new virological laboratory has been completed at Kamloops, B.C., and permits the conduct of all essential laboratory work in connection with the field investigations. Under the direction of Dr. G. D. W. Cameron, D.P.H., Director of the Laboratory of Hygiene, Dr. R. J. Gibbons, D.P.H., is in charge of the survey and the laboratory investigations.

#### PROVINCIAL TRAVELLING CLINIC IN ALBERTA

As part of the public health services in unorganized districts in Alberta, a travelling clinic has been functioning for a number of years. The plan was introduced in 1934. The clinic provides for complete physical examinations, tonsillectomies and other minor operations, dentistry, and immunizations. The clinic visits only places to which it is invited. The arrangement provides that twelve school districts shall combine for clinic purposes, and a public health nurse makes a preliminary inspection of school children in the district and recommends all those who she considers should be examined.

The clinic left on May 18th for outlying districts in the northern part of the province. A three-months' itinerary has been arranged.

#### COURSES OF INSTRUCTION FOR MEDICAL OFFICERS OF HEALTH IN MUNICIPALITIES IN ONTARIO EMPLOYING PART-TIME HEALTH OFFICERS

IN keeping with the requirements of the governing legislation in Ontario, courses of instruction for medical officers of health in municipalities with a population of four thousand or over, and those communities in which the population is less than four thousand, have been set up.

For part-time health officers in the larger centres of population, a course of six weeks' duration has been provided in co-operation with the School of Hygiene, University of Toronto. Successful completion of this course is a prerequisite to appointment. It is hoped in such a course to give those required to attend, sufficient in the way of information to permit of their giving adequate direction to the local health program.

For those health officers recently appointed to smaller urban centres and rural municipalities, the Department of Health has planned a short course of three days' duration. This

course will be held June 10, 11 and 12, in the School of Hygiene, University of Toronto. Owing to the limitation inherent in any course of instruction of this length the course has been designed to serve as a brief but practical introduction into those phases of public health which present with greatest frequency in the smaller centres.

It is the hope of the Department that both of these courses will materially aid those who are responsible for the operation of the local health program.

#### MATERNAL MORTALITY IN CANADA

DURING 1938 an important measure of improvement in maternal mortality in Canada was recorded. While year to year fluctuations in the past have been substantial, the trend during 1939 has been followed with particular interest in order to determine whether and to what extent some of the gain during 1938 might be lost. In the following table the maternal death rates for 1936 to 1938 and for the first three quarters of 1939 are shown for the Maritime Provinces, Quebec, Ontario, the Prairie Provinces and British Columbia.

MATERNAL MORTALITY IN PROVINCES\*  
1936-1939

| Year    | Maritimes | Quebec | Ontario |
|---------|-----------|--------|---------|
| 1936... | 5.4       | 6.0    | 5.7     |
| 1937... | 3.4       | 5.2    | 5.2     |
| 1938... | 4.2       | 5.2    | 3.8     |
| 1939†.. | 4.9       | 4.7    | 4.3     |

| Year    | Prairies | British<br>Columbia | Canada |
|---------|----------|---------------------|--------|
| 1936... | 5.2      | 4.7                 | 5.6    |
| 1937... | 4.6      | 4.5                 | 4.9    |
| 1938... | 3.2      | 3.9                 | 4.2    |
| 1939†.. | 3.2      | 2.8                 | 4.2    |

\*Rates per 1,000 live births.

†January to September, preliminary figures.

The national figure indicates that the improvement has on the whole been maintained. From province to province, however, the figures show

certain variations from previous years, with important gains being recorded in Quebec and British Columbia and some measure of loss in Ontario. In view of the small number of deaths involved in the several rates and the known fluctuations referred to above, there is considerable satisfaction in the general maintenance of the substantial recent improvement in the risk of childbearing in Canada.

#### REPORT OF THE DEPARTMENT OF NOVA SCOTIA, FOR THE YEAR END- ING NOVEMBER 30, 1939, AND OF THE DEPUTY REGISTRAR GEN- ERAL FOR THE CALENDAR YEAR 1938

THE reports of the chief health executive in each province continue to be characterized by a record of reassuring health progress. The latest report for Nova Scotia is no exception. In 1938 the infant death rate reached a new low, the frequency and mortality from the acute communicable diseases of childhood showed an improvement over the previous year and no widespread prevalence was reported, and a substantial decline in the death rate from tuberculosis cases was recorded.

The more satisfactory picture in tuberculosis reflects the success which has attended persistent efforts to achieve the isolation of a high proportion of open cases. The benefit of sanatorium care lies not alone, nor indeed even more particularly, with the patients concerned, but rather with the community in which such individuals constitute a serious source of infection to others as long as they remain. A substantial growth in the case finding field activities and the general co-operation of practising physicians is indicated by the number of examinations conducted by field clinics which totalled 5,254 during the year.

Reports of the several Divisional Medical Health Officers and Division

Directors in the service follow that of the Chief Health Officer. The report of the Statistician and Epidemiologist, though much too brief, is of interest. The undertaking of two tests of the completeness of birth registration, the importance of which is frequently overlooked, is valuable. The Provincial Pathologist indicates that a total of 832 tissues were examined in which a diagnosis of a benign, malignant or suspicious tumour was made. Of this total, 440 were malignant and 28 "suspicious" tumours. This type of

service is particularly important in the cancer field as an aid in early diagnosis and effective treatment.

#### APPOINTMENTS

Two appointments were made recently to the Department of Pensions and National Health, for service primarily with the Division of Quarantine, Medical Immigration and Sick Mariners: Dr. C. F. Blackler, D.P.H., for duty at Saint John, N.B., and Dr. G. E. Maddison, D.P.H., for duty at Halifax, N.S.

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### JAMES ROBERTS, M.D.

ON March 15th Dr. James Roberts, one of the leaders in public health on this continent, died at his home in Hamilton. Dr. Roberts was sixty-four years of age and for thirty-five years had served the city of Hamilton as Medical Officer of Health.

Dr. Roberts was born at Woodburn, Ontario. After graduating in medicine from McGill University in 1901, he practised for a year in the Muskoka District and then went to Hamilton, being appointed Medical Officer of Health in 1905. In 1914 he went overseas with the Third Stationary Hospital of the Royal Canadian Army Medical Corps, serving in Salonika on the Eastern Front. While there, he suffered from an attack of dysentery and was invalided home. He was retired from the Army with the rank of Major.

Among public health administrators Dr. Roberts occupied an outstanding place. As a result of his thirty-five years of untiring service, he had the satisfaction of seeing developed in the city of Hamilton one of the most effective health departments on the continent. The name of Hamilton, Ontario, became internationally known for its achievement in controlling diphtheria as well as for its success in reducing infant mortality

and tuberculosis. In 1921, just before immunization was made available, there were 606 cases, with 41 deaths. So effectively was the campaign of immunization against this disease conducted by Dr. Roberts that during the past five years not one case of diphtheria was reported.

Dr. Roberts was a keen student of the problems of housing and of social medicine. His zeal for investigation of the new and his adherence to the high principles of his profession made him an example to all health officers. When convinced of the necessity for action, he was fearless, and his opinions were always respected. He was a frequent contributor to medical literature, recording the results of investigations in the various fields of public health. He was honoured by the American Public Health Association, which he served as Vice-President, and by the International Association of Health Officers, which he served as President. For many years he was a member of the Executive Council of the Canadian Public Health Association.

Dr. Roberts is survived by his widow (formerly Miss Margaret MacBeth), and two sons, both of whom are attending the Faculty of Medicine, University of Toronto.

## BOOKS AND REPORTS

**Virus and Rickettsial Diseases—With Especial Consideration of Their Public Health Significance.** *A symposium held at the Harvard School of Public Health, June 12-17, 1939. Published by the Harvard University Press, Cambridge, Mass., 1940. 907 pages. \$6.50.*

IN June, 1939, a symposium on the virus and rickettsial diseases was held at the Harvard School of Public Health. The publication of the papers formally presented at this symposium does much to meet an urgent need for an up-to-date account of virus infections which will be of service to students, practising physicians, and public health officers. The scope of the volume is wide. Over 150 pages are devoted to general discussions of the properties of viruses, the immunology of virus agents, and epidemiologic problems in virus diseases. This is followed by 31 papers which deal with variola, vaccination, measles, mumps, lymphogranuloma inguinale, virus diseases of the respiratory tract, human and swine influenzas, psittacosis, poliomyelitis, virus infections of the central nervous system, rabies, equine encephalomyelitis, lymphocytic choriomeningitis, yellow fever, rickettsial diseases, and other topics.

The volume is not without defects. It is badly balanced in places, but of course it should be borne in mind that it comprises a series of papers on selected topics. Criticism is somewhat disarmed by the foreword, which states: "It was deemed inadvisable to leave completely uncovered important parts of the subject not under active local investigation. A number of the papers, therefore, represent merely accurate and, we believe, scholarly reviews of the literature on certain virus diseases, compiled and critically appraised by individuals competent by training and experience to analyse them with judgment." On the other hand, many of the papers

are written by individuals who are or have been engaged in actual investigation in the subjects of which they write. The merits of this volume and the fact that it meets a definite need would appear to outweigh any of its defects and it is warmly commended to all who are interested in virus infections of man and their prevention and control.

James Craigie

**Rural Medicine.** *Proceedings of the Conference held at Cooperstown, New York, October 7 and 8, 1938. Published by Charles C. Thomas, Springfield, Illinois, and Baltimore, Maryland. 268 pages. \$3.50 postpaid.*

THIS volume is a record of the proceedings of a conference on rural medicine held in Cooperstown, New York, in October, 1938. It was organized by the staff of the Mary Imogene Bassett Hospital. It is well known that present knowledge of morbidity, both urban and rural, is exceedingly meagre. It is especially true of sickness occurring amongst persons living in rural communities. Therefore any enquiry undertaken to add to present understanding of the problem is highly commendable. The factual material presented in this publication, while neither very extensive nor novel, does supplement what was previously known. More important, however, this study serves to indicate more precisely what and where the gaps in knowledge are at the present time. Also methods of approach to the problem are here presented. These are undoubtedly more satisfactory than those previously employed.

The book consists of five parts. In the first rural morbidity is considered in a series of six chapters. The first is a study of the demography of the county. This is a most satisfactory presentation and is contributed by the Director of the Division of Vital Statistics of the New York State



Department of Health. In the next chapter an analysis of 13,000 consecutive hospital discharges is presented. The other chapters are devoted to a consideration of acute surgical conditions of the abdomen, emergency surgery, and the incidence of heart and vascular diseases in the Mary Imogene Bassett Hospital. The discussion of these papers by the group of consultants and experts in the fields of public health and vital statistics is most valuable. The subject-matter of these chapters is factual and its significance indicated in the discussion which followed the presentation of the papers. It is interesting to observe that agricultural employment is responsible for the highest number of occupational deaths throughout the United States each year. The population of the county in which this study was undertaken is an aging one. In consequence there is a high incidence of degenerative heart disease. Cerebral arteriosclerosis appeared to be commoner than in certain urban areas where analogous morbidity studies have been made. Peripheral vascular disease seems to present a more serious problem. It is brought out in the discussion that perhaps 30 per cent. of all cases of sickness do not receive medical care. If that is so, the value of such studies as this is quite limited when based upon the records of in-patients only. Obviously a very considerable part of the total morbidity will not be included if only 2 to 3 per cent. of the population make up the total of hospital admissions. It is true, however, that if the study had been continued for a sufficiently long period the incidence of disabling illnesses in such a group might well have amounted to 60 per cent. of the total. A study limited to the records of hospital admissions and discharges alone, then, will not shed a great deal of new light upon the morbidity problem.

Part II is devoted to a consideration of the programs and actual work of rural health departments and of

rural health services. What should be provided and what is actually offered at the present time are indicated. There is considerable criticism of methods of conducting school health examinations, and some suggestions are made for their improvement. The discussion of the communications presented in this section of the book is especially useful.

Part III consists of papers dealing with the subject of postgraduate medical education in rural areas. Methods of postgraduate training in country districts in various parts of the United States at the present time are also included.

A bibliography of rural medicine is appended. This publication should assist those who may be interested in the future in the organization of conferences on rural medicine. It should also be useful to public health officers generally and to all those in any way responsible for the provision of medical services in rural communities.

J. G. Fitzgerald

**Immunity: Principles and Application in Medicine and Public Health.** By Hans Zinsser, John F. Enders, and LeRoy D. Fothergill. Published by the Macmillans in Canada, St. Martin's House, Toronto, 1939. 782 pages. \$6.50.

THIS is the fifth edition of Zinsser's *RESISTANCE TO INFECTIOUS DISEASES*, published first in 1914 with the last previous revision in 1931. It is "an exposition of the Biological Phenomena of Reinfection and Recovery of the Animal Body from Infectious Disease, with Consideration of the Application of the Principles of Immunity to Diagnosis, Treatment and Prophylaxis and Their Usefulness in the Control of Epidemics". It "represents an endeavour to meet the need for increased correlation between the principles revealed in laboratories and their applications to the problems of the clinic and of public health." It meets that need admirably. The volume is really a critical review of the observa-

tions and findings in the broad field of immunology, with sharp discrimination between fact and theory, and the lack of definite knowledge is emphasized as strongly as the more certain additions that have come in the past thirty to forty years. In controversial questions the authors have not hesitated to state frankly their opinion—an opinion based on an experience of a life-time in the general subject and a full knowledge of the contributions in the specific problem. This will be appreciated by all readers, whether undergraduate medical students or those who have studied from Zinsser's textbooks over the past quarter-century. One may not agree with such opinions always, but always they will be treated with respect. For instance, the use of the term "immune reactions" following revaccination (vaccinia) on page 761 implies the acceptance of that term and concept. Repeated observations of reactions to revaccination of a few medical students suffice to show that the early sensitivity reaction—called the immune reaction—indicates only sensitivity and not immunity. A number of such reactions are followed by reactions which follow the course of primary vaccinations. This is of theoretical significance as well as of practical importance. The work of Doull et al. on prophylaxis of whooping cough is not accepted by the authors and the failure to obtain favourable results is perhaps too rapidly explained on the washing with distilled water in the preparation of the vaccine. Doull's later communication, not published when the text was written, hardly warrants such a conclusion.

Such differences of opinion do not

detract from the value of the book. In fact, they enhance its value, for, reading the book, one realizes that it is written to show the limitations in our knowledge and to point the way for further investigation as much as to present the present-day knowledge.

There is no room to criticize this volume. It eminently deserves to have been written. It is not just the result of a desire to write a book but is a very valuable contribution from those who are thoroughly capable of making such a contribution. The many references given at the end of each chapter (and each of them thoroughly analysed in the manuscript) give some indication of the care and the labour involved in the preparation. The set-up and printing are everything that could be desired.

This book should be read and re-read with consequent enlightenment and pleasure by all physicians and surgeons and medical students.

N. E. McKinnon

**Medicolegal and Industrial Toxicology, Criminal Investigation, Occupational Diseases.** By H. J. Eilmann. *The Blakiston Co., Philadelphia, Pa., 1940. 322 pages. \$3.00.*

THIS small book deals with poisons and drugs, criminal investigations, medicolegal examinations of miscellaneous nature, industrial poisoning, and occupational diseases. Each subject is condensed and since the number of subjects covered is large, this publication does not take the place of books which restrict their content to special subjects.

F. M. R. Bulmer

## CURRENT HEALTH LITERATURE

### **An Evaluation of the Clinical Toxicity of Sulfanilamide and Sulfapyridine**

In this paper the authors have carefully studied and evaluated the toxic effects produced by the two drugs in cases treated at the Toronto Western Hospital. Two different schemes of dosage were employed in the treatment of pneumonia with sulfapyridine, the second and heavier dosage scheme being instituted in February, 1939. The case fatality rate with the two plans was 5.5 per cent. for the earlier and lighter dosage scheme and 7.7 per cent. for the later group.

A comparative analysis of 100 cases treated by each drug revealed that the commonest mild toxic manifestations with sulfanilamide were cyanosis, headache, and dizziness, and with sulfapyridine, nausea, anorexia, and vomiting. The severity of the vomiting, amounting even to agony, is stressed by these authors and the use of nicotinic acid and mucilage of tragacanth is indicated.

With regard to serious toxic reactions, it was shown that exclusive of drug rashes and fevers, the number of such manifestations in the 100 cases treated with sulfanilamide was 19 as against 63 in the 100 cases treated with sulfapyridine. Including drug rashes and fevers, the totals were 40 and 78 respectively. Renal complications were practically confined to the sulfapyridine cases. Leukopenia and neutropenia were more common in the patients receiving sulfapyridine. In 300 sulfanilamide cases there was not one instance of granulocytopenia, whereas in the first 100 cases treated with sulfapyridine there were 3 cases. Further, severe toxic reactions with sulfapyridine occurred four to five times as frequently in the group treated with heavier doses.

The effect of duration of time of drug administration on the resulting complications with both drugs is discussed. Patients treated with intensive doses and in whom high blood

concentrations of sulfapyridine were attained showed a very high incidence of serious toxic reactions.

The authors in conclusion stress the fact that sulfapyridine is essentially more toxic than sulfanilamide. They emphasize the need for careful judgment in administration and adequate supervision of the patient in the treatment of pneumonia with sulfapyridine.

W. Hurst Brown, Wm. B. Thornton, and J. Stuart Wilson, *J.A.M.A.*, 1940, 114: 1605.

### **The Effect of Quick Freezing on the Nutritive Values of Foods**

THE amount of food subjected to a quick freezing process in the U.S.A. now approximates 500,000,000 pounds annually, with a wide variety of products represented. Problems such as selection of suitable varieties of fruits and vegetables, the treatment of the raw material before freezing, and the packaging, storing and transportation were studied.

Bacteriological research on quick-frozen foods showed the number of micro-organisms to be greatly reduced by the process. Such foods, however, should be cooked without thawing or very shortly afterward, and refreezing must be considered unsafe. Limited studies have failed to show deleterious effects on the proteins of food. Chief consideration has been directed to vitamin values and results indicate that with vitamins A, B, and G little if any loss occurs while the loss of vitamin C is variable due to a number of factors such as the type and age of the food being processed.

Mary Schwartz Rose, *J.A.M.A.*, 1940, 114: 1356.

### **Psychological Effects of War**

THIS is a brief but timely article in which the author analyses the possible effects of modern war on the mental state of our people. Psychological cases are classified as psychoses and psychoneuroses, each of these being subdivided into their various components. Psychoneuroses, being

largely of extrinsic origin, are more important in wartime. They are distinguished from the psychoses in that insight is present in the former and lacking in the latter. Finally, accepted methods of treatment are outlined and their applicability under war conditions pointed out.

G. C. F. Roe, *Pub. Health*, 1940, 53: 123.

### **A Mild Epidemic of Undulant Fever in a Boys' School due to Drinking Raw Milk**

In a public school of 400 boys two definite cases of undulant fever occurred and 26 other boys developed some illness resembling that of the two cases except in severity and duration. Agglutinin titres for *B. abortus* were 1:5000 and 1:1100 respectively for the two cases while among the group of 26 boys 10 possessed titres from 1:20 to 1:1100. Seventeen boys suffering from chickenpox were taken as a control group and five showed agglutinins in titres greater than 1:20. These results appear to indicate the occurrence of subclinical cases and silent infections in quite high proportions.

Each boy at the school had been provided with a glass of ungraded raw milk daily. On investigation, infected animals were found in the dairy herds and brucella organisms were recovered from the milk. Pasteurized milk was immediately substituted and after a period of three weeks no further cases developed.

G. W. Elkington, G. S. Wilson, Joan Taylor, and F. Fulton, *Br. M.J.*, 1940, March 23, p. 477.

### **Progress in the Selenium Problem**

THE importance of recent knowledge of selenium in its relation to economic problems and to public health has been recorded in the literature. The influence of various chemical elements, such as arsenic, on the toxicity of the selenium-containing grains has been determined.

Reference is made to a preliminary report of the United States Depart-

ment of Agriculture in which the solution of the problem of the chemical nature of the selenium in seleniferous grains is discussed.

J.A.M.A., 1940, 114: 1083.

### **Tuberculosis in Student Nurses**

BEFORE examining available data on the subject of tuberculosis in student nurses, the author presents several impressive facts regarding this disease which must be taken into consideration. (1) The percentage of all deaths due to pulmonary tuberculosis in the age group in which student nurses belong as well as the number of deaths due to pulmonary tuberculosis, is greater than in any other. (2) The morbidity of pulmonary tuberculosis is higher at this than at any other age among women. (3) Periodic X-ray examinations increase the number of pulmonary lesions found among young adults by as much as 475 per cent.

The incidence of tuberculosis varies more with the method of case finding than all other factors of age, sex and occupation together. The interpretation of the findings has a bearing on the reported morbidity. Outside of hospitals it is rare to find a group who have periodic X-ray examinations. Pupil nurses are X-rayed twice a year. Among their number are many who are tuberculin-negative and it has been demonstrated that tuberculin-negative and tuberculin-positive students are two completely distinct groups in relation to the effect of tuberculosis exposure. Such a group will show a number of cases of lung shadows of primary tuberculosis which would never have been known except for the routine X-ray films. These shadows are not usually clinical tuberculosis but do swell the reported morbidity for the group. The author concludes that comparison of the nursing group, as a whole, to other groups does not indicate that tuberculosis is an occupational disease.

Leopold Brahdy, *N.Y. State J. Med.*, 1940, 40: 326.

